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(See inside back cover for Other Science Resources Publications.)

science and engineering doctorates: 1960-81

national science
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special report

NSF 83-309

I

foreword

This is the first publication in a new series of special analytical reports based upon the Survey of Earned Doctorates. The data on science and engineering (S/E) doctorate production reported here cover the period from 1960 through 1981—a span of time in which S/E doctorate production approximately tripled. Monitoring these trends in production is important to higher education and science and technology policy. Career decisions, hiring plans, and the allocation of training funds may be based upon these data. This publication will be updated periodically as data for a new cohort of S/E doctorates become available.

Charles E. Falk
Director, Division of Science
Resources Studies
Directorate for Scientific, Technological,
and International Affairs

February 1983

acknowledgments

This publication was prepared by Sharon E. Dyer, Program Analyst, Supply and Education Analysis Group (SEAG), under the supervision of Charles H. Dickens, Senior Study Director, SEAG, Division of Science Resources Studies. Elise Brand, Research Assistant, National Academy of Sciences, performed the necessary computer programming under the direction of Peter D. Syverson, Survey Operations Manager, National Academy of Sciences. General guidance and review were provided by Alan Fechter, Head, Scientific and Technical Personnel Studies Section, and Charles E. Falk, Director, Division of Science Resources Studies.

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general notes

The Survey of Earned Doctorates has been conducted annually by the National Academy of Sciences for the National Science Foundation (NSF) and other Federal agencies since 1957. Information from this survey becomes part of the Doctorate Records File, which includes about 700,000 records for doctorates awarded since 1920. Only data for the 1960-81 period are presented here. Doctoral degrees such as the Ph. D. or D. Sc. are included in these surveys, but first-professional degrees such as the J.D. or M.D. are not. Approximately 95 percent of the annual cohort of doctorates responded to the questionnaire distributed through the cooperation of the Graduate Deans. Partial data from public sources are added to the file for nonrespondents. The data for a given year include all doctorates awarded in the period from July 1 to June 30 by regionally accredited universities and colleges.

Detailed data for 1960 through 1981 are published here for science/engineering (S/E) fields according to the NSF taxonomy, although the survey includes non-S/E fields, e.g., the humanities. Changes in the field taxonomy or in particular items of the questionnaire are described in the accompanying footnotes. The footnotes also furnish details on additions or deletions of fields from the NSF taxonomy. In the tables a zero (0) indicates that no doctorates were produced that year; a dash (-) indicates that data are not available for a given period either because a field had been deleted earlier or because data collection for a particular field had not yet begun.

A separate NSF publication, *Science and Engineering Degrees: 1950-80* (NSF 82-307), also contains data on S/E doctorate collected by the National Center for Education Statistics (NCES) and reclassifie according to the NSF taxonomy. Users o the two reference documents *Science an Engineering Doctorates: 1960-81* an *Science and Engineering Degrees: 1950-8* should be aware that the data for tot and S/E doctorates differ slightly becaus of different data collection methods. Th differences between the two data serie as shown below, have been generall consistent over the 1960-81 period.

Year	Total Ph.D.'s	S/E Ph.D.'s	NCES/NSF Ratio Total Ph.D.'s	NCES/NSF Ratio S/E Ph.D.'s
1960	9,733	6,263	1.01	.97
1961	10,413	6,721	1.02	.97
1962	11,500	7,438	1.01	.97
1963	12,729	8,220	1.01	.98
1964	14,325	9,224	1.01	.98
1965	16,340	10,476	1.01	.98
1966	17,949	11,458	1.02	.99
1967	20,982	12,982	1.01	.98
1968	22,936	14,448	1.01	.98
1969	25,743	16,039	1.02	.99
1970	29,498	17,743	1.01	.99
1971	31,867	18,948	1.01	.97
1972	33,044	19,009	1.01	.97
1973	33,756	19,001	1.03	.98
1974	33,047	18,313	1.02	.98
1975	32,931	18,358	1.04	.97
1976	32,946	17,864	1.03	.97
1977	31,718	17,418	1.05	.97
1978	30,873	17,048	1.04	.95
1979	31,235	17,245	1.05	.95
1980	31,016	17,199	1.05	.96

SOURCES: National Science Foundation and National Center for Education Statistics

Data from the Survey of Earned Doctorates, reported here, are collected directl from the individual doctorates, while th degree data collected through the NCE Higher Education General Informatio Survey (HEGIS) are supplied by institutional representatives. The number of S/ degrees differs slightly between the tw sources both because of the differen suppliers of the data and because of differences in field classification systems. I addition, the NSF data on total degree are restricted to research doctorates whil those of NCES may include nonresearc doctorates. NCES, therefore, reports a large number of total doctorates. Because th NCES HEGIS includes information o bachelor's, master's, and doctor's degree that source is the more appropriate fo studying relationships between degrees a different levels. The Survey of Earne Doctorates is best suited for describin the characteristics of doctorate recipients

charts

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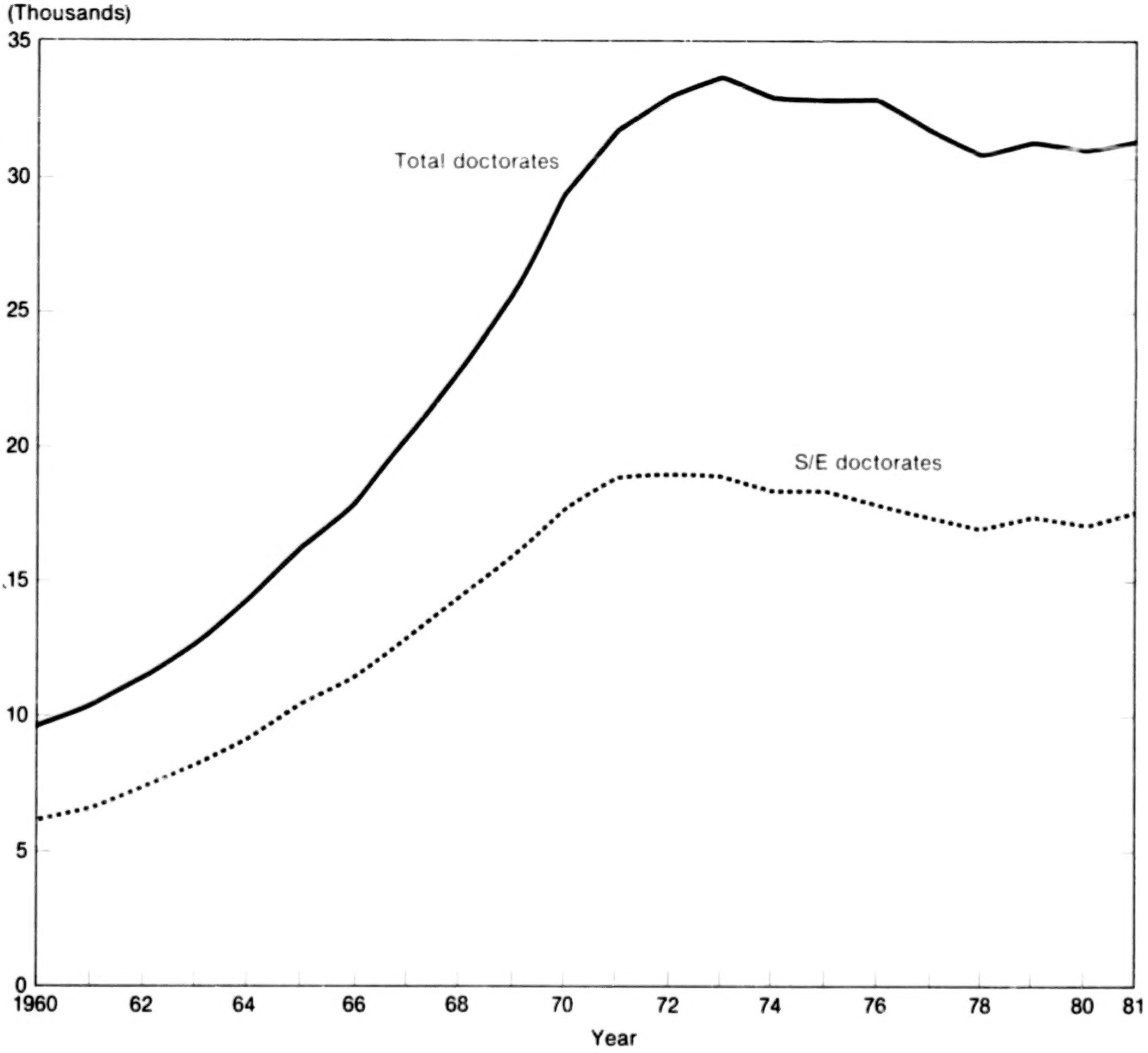
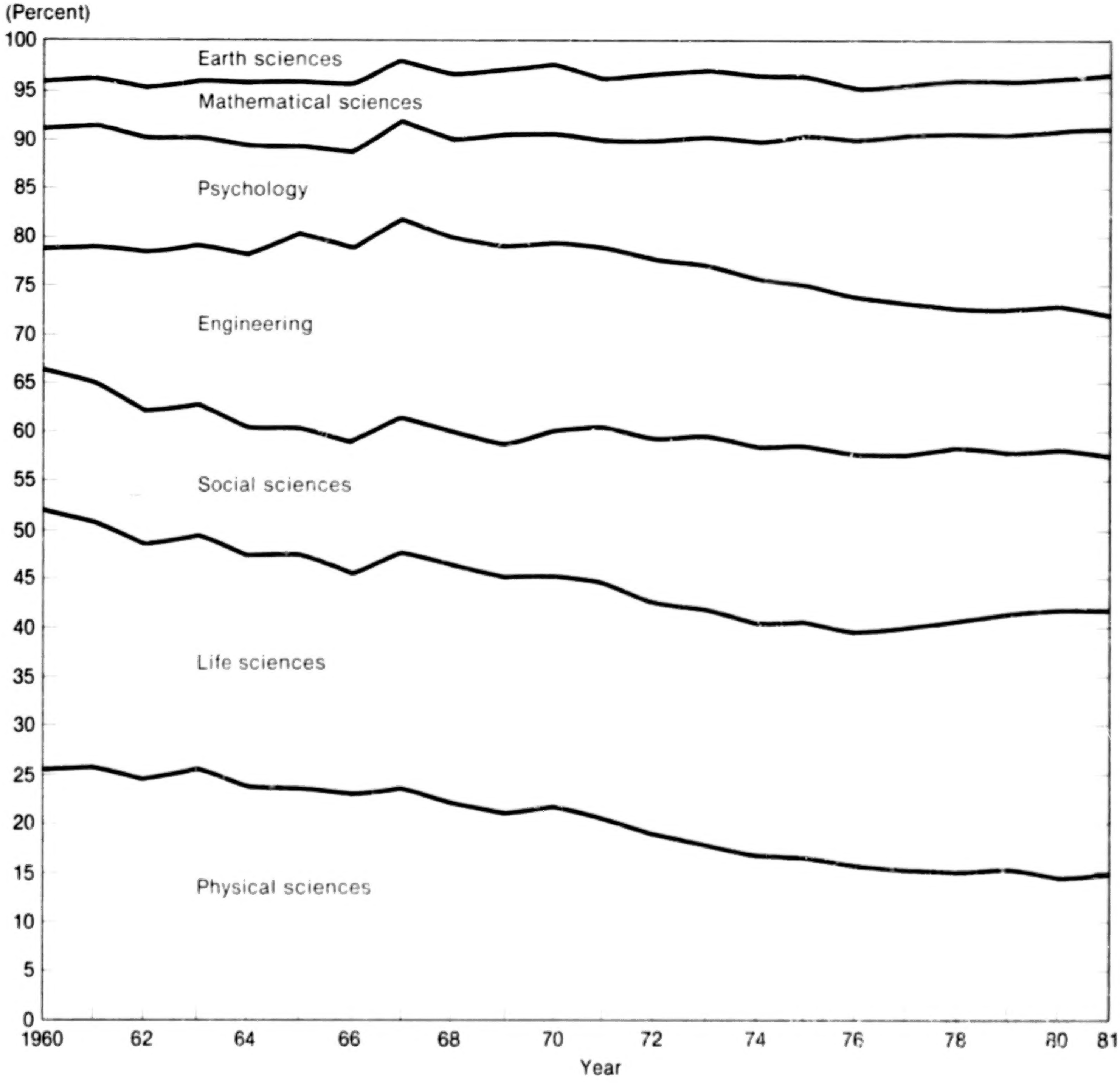
Chart 1. Science/engineering (S/E) doctorates



- Annual science/engineering (S/E) doctorate production increased steadily up to 1972, when the number of graduating S/E doctorates began to decline. By the end of the seventies, however, S/E doctorate production once again grew — albeit at a slower rate than during the sixties. The mathematical and physical sciences and engineering generally followed the pattern of overall S/E doctorate production, while the social and life sciences continued to grow through both decades.

SOURCES: National Science Foundation and National Research Council

Chart 2. Shares of science/engineering doctorates by major field



- The field composition of the annual science/engineering (S/E) doctorate cohort has shifted since the sixties. The share of doctorates in the life and social sciences and psychology rose from slightly over one-half in 1960 to three-fifths in 1981, while the share for the physical sciences declined from 25 percent to 15 percent.

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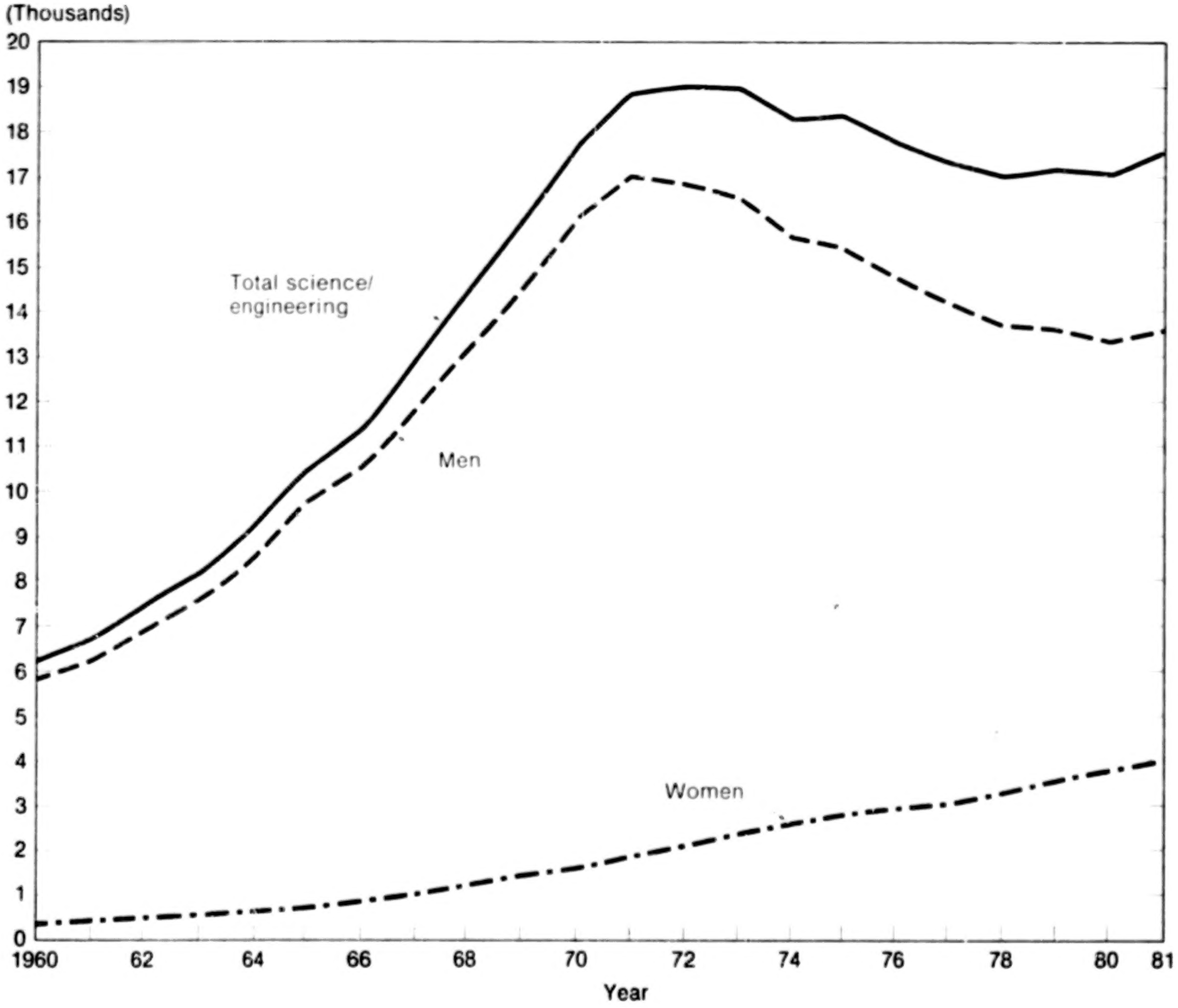
SOURCES: National Science Foundation and National Research Council

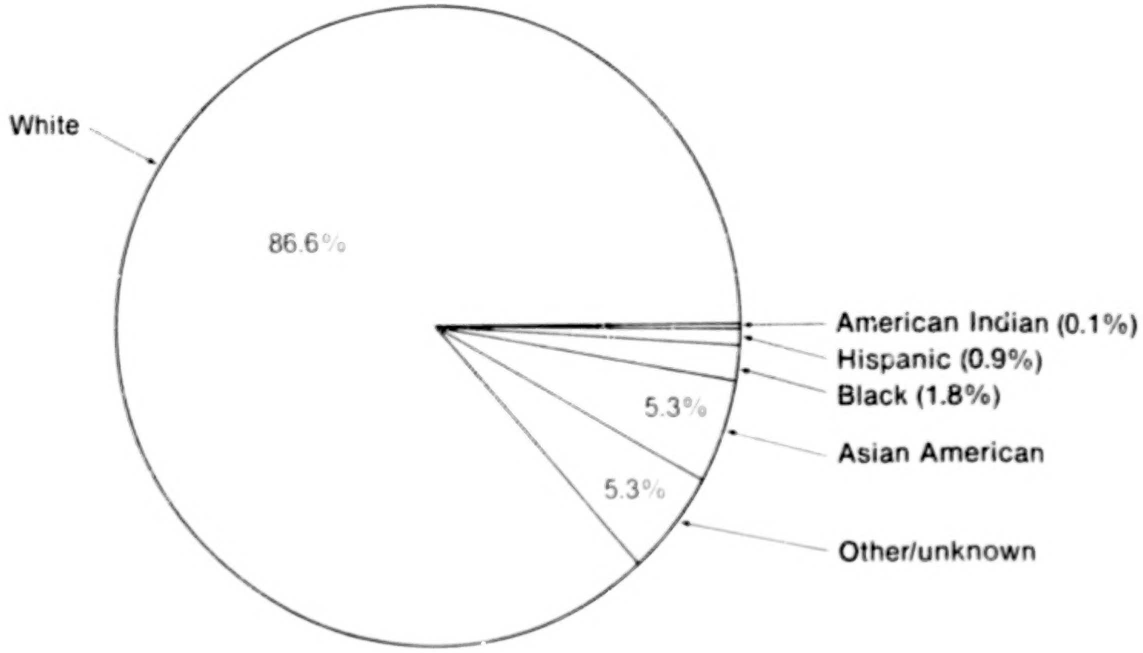
Chart 3. Science/engineering doctorates by sex



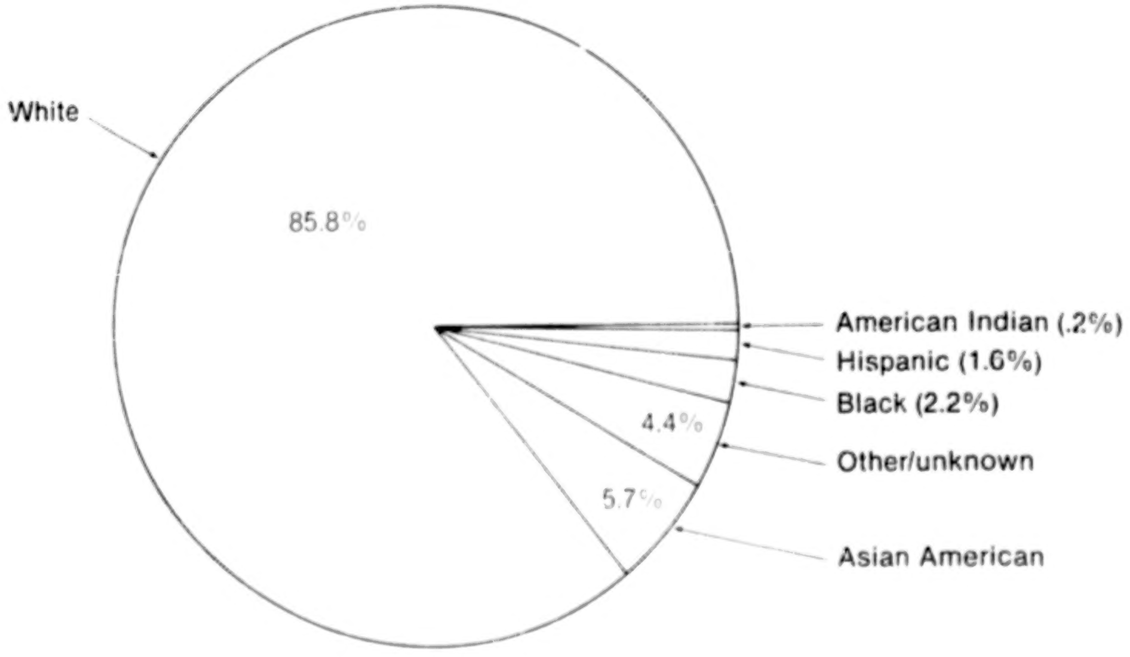
- The number of science/engineering (S/E) doctorates granted to women increased yearly, tripling after 1960. In contrast, the number of doctorates awarded to men rose from 5,800 in 1960 to a peak of 16,900 in 1972 and then declined to 13,600 in 1981. Despite this decline, men maintained a larger share of S/E doctorates than women, 77 percent in 1981. Women doctorates were concentrated in the life and social sciences, fields that have exhibited steady growth since 1960. Although the number of women in these fields increased since 1960, men still accounted for the majority of their doctorates.

SOURCES: National Science Foundation and National Research Council

Chart 4. Racial/ethnic identity of 1975 and 1981 science/engineering doctorates[a]



1975



1981

- Asian Americans constituted the largest group among minority science engineering (S E) doctorates. The majority of S E doctorates, however, were awarded to whites.

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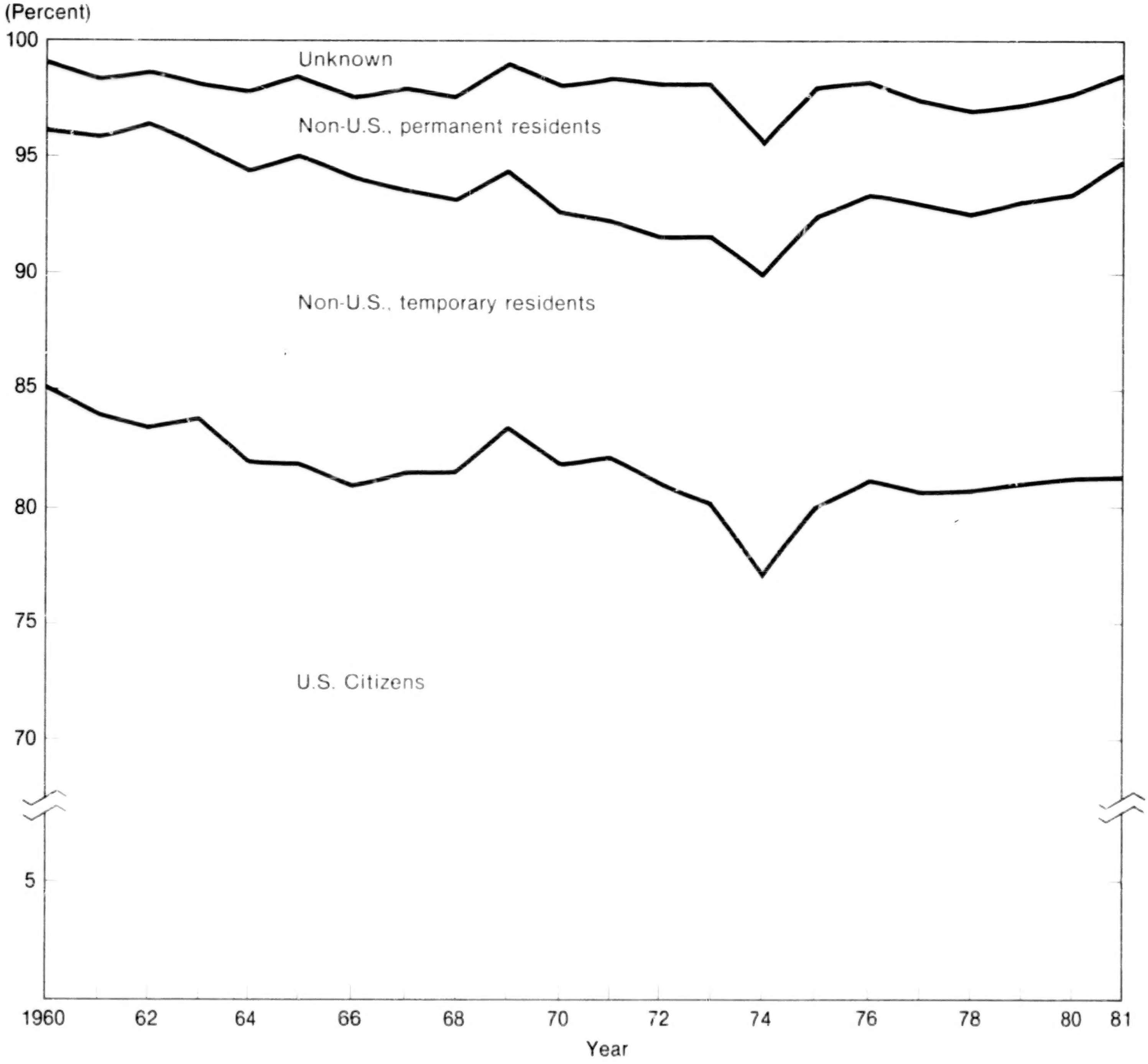
[a] Only U.S. citizens or non-U.S. citizens with permanent U.S. resident status are included in this chart.

SOURCES: National Science Foundation and National Research Council

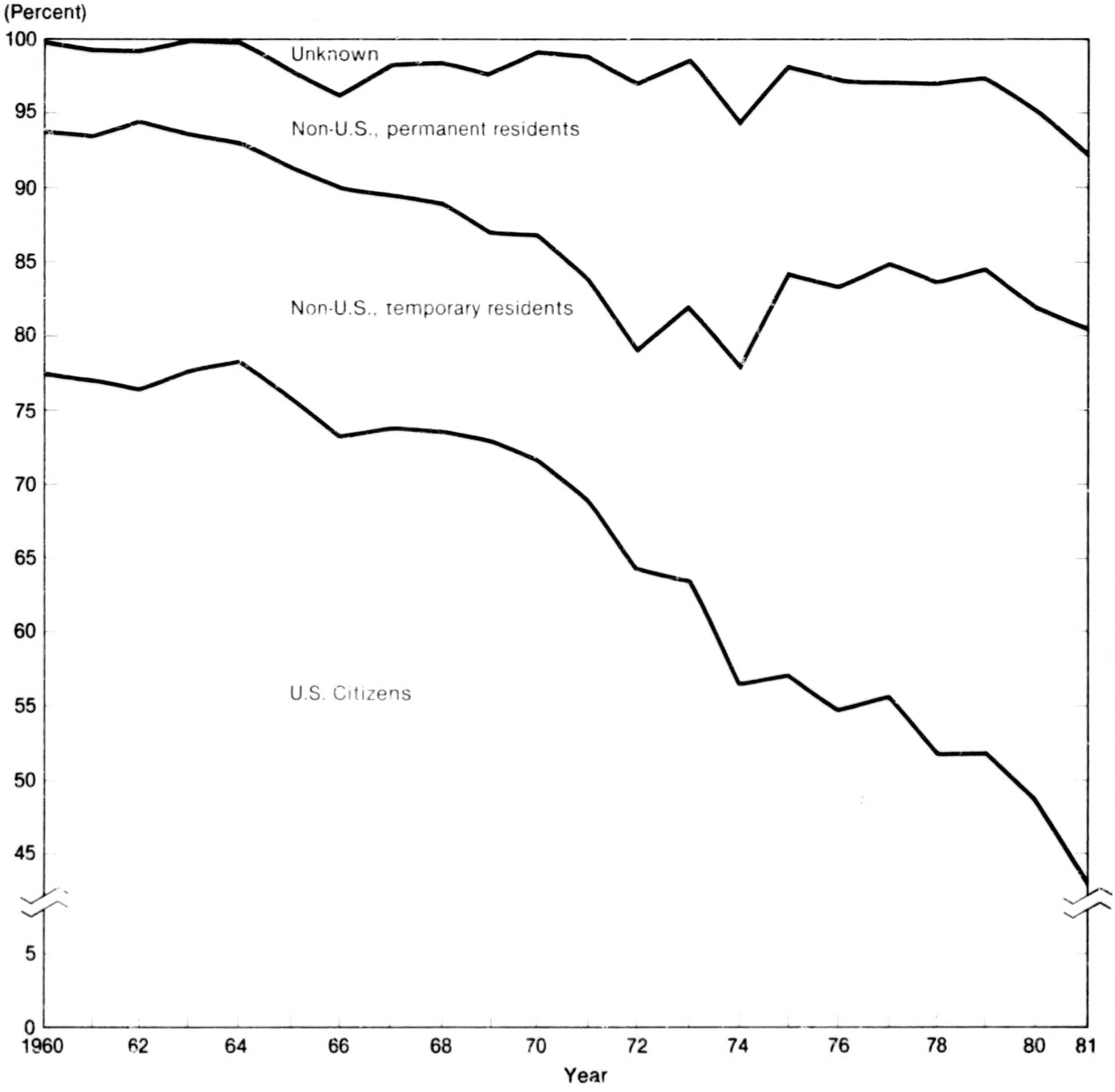
Chart 5. Citizenship status of science doctorates



- Most science/engineering (S/E) doctorates are awarded to U.S. citizens, but this proportion has declined since 1960. The share awarded to non-U.S. citizens who are permanent residents in the United States has increased over this period. The share of doctorates awarded to noncitizens who are temporary residents has decreased since the early seventies.

SOURCES: National Science Foundation and National Research Council

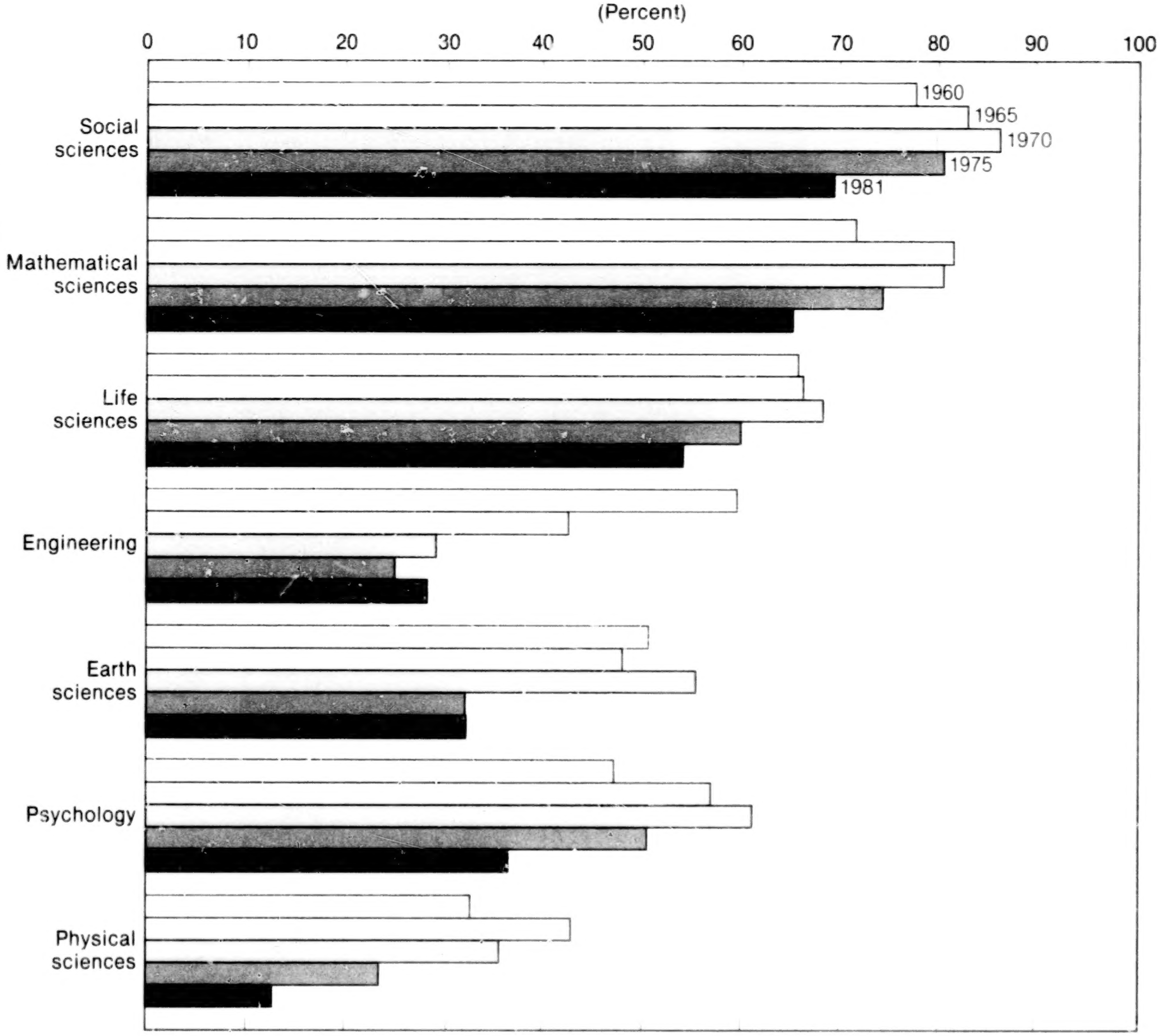
Chart 6. Citizenship status of engineering doctorates



- The share of engineering doctorates awarded to non-U.S. citizens has increased sevenfold in the past 20 years. By 1981, over half the graduating engineering doctorates were non-U.S. citizens.

SOURCES: National Science Foundation and National Research Council

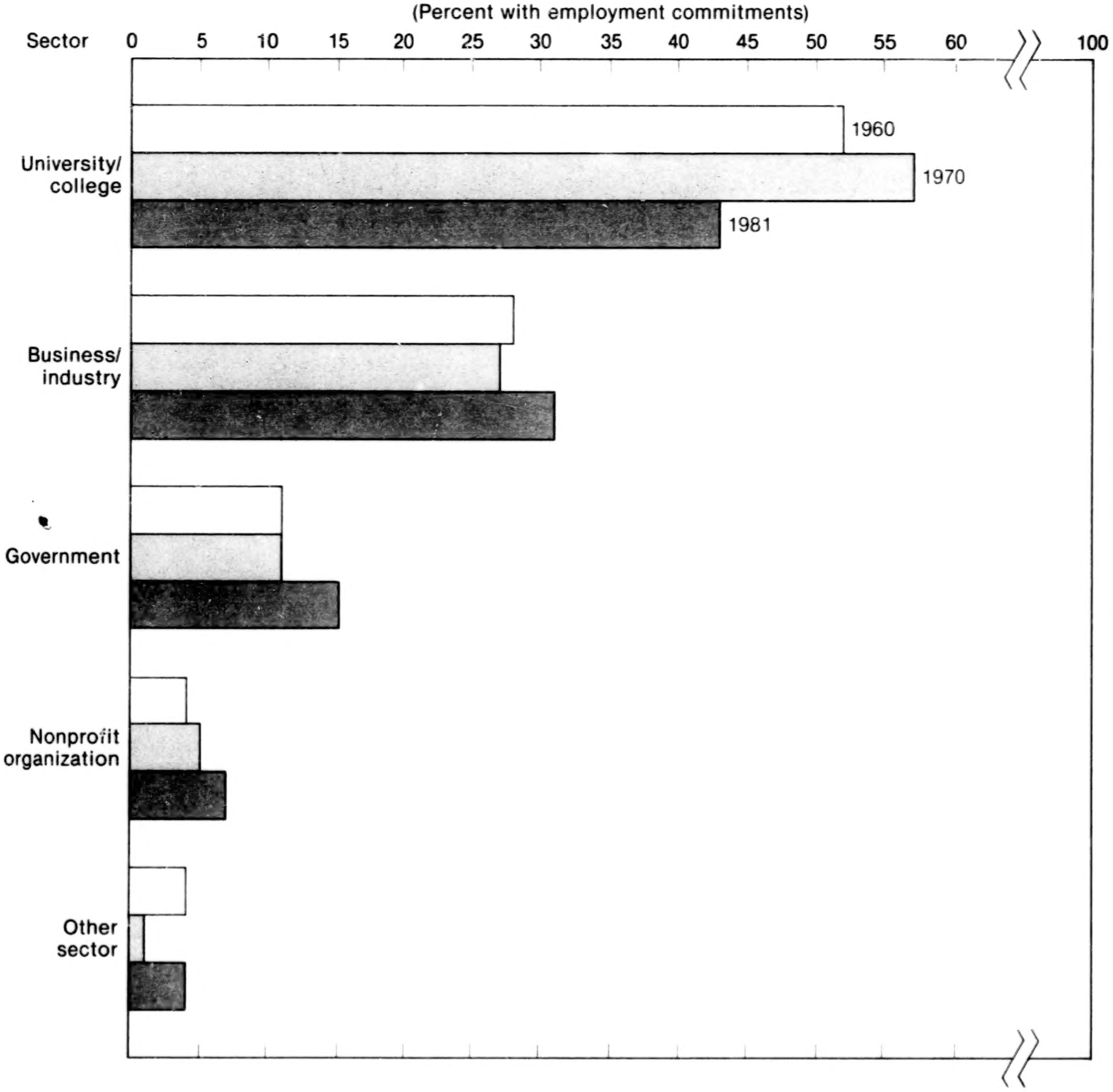
Chart 7. Trends in academic employment commitments among science/engineering doctorates by major fields: selected years



- The proportion of new science engineering (S E) doctorates with academic employment commitments has declined since the sixties, particularly for engineering and the physical sciences. Academic employment continued to constitute the majority of commitments for social, mathematical, and life scientists.

SOURCES: National Science Foundation and National Research Council

Chart 8. Postgraduation employment commitments by sector for science/engineering doctorates: selected years



- The importance of academic employment to new science/engineering (S/E) doctorates has declined since the early seventies. Nonacademic employment, particularly in private business, has become increasingly important.

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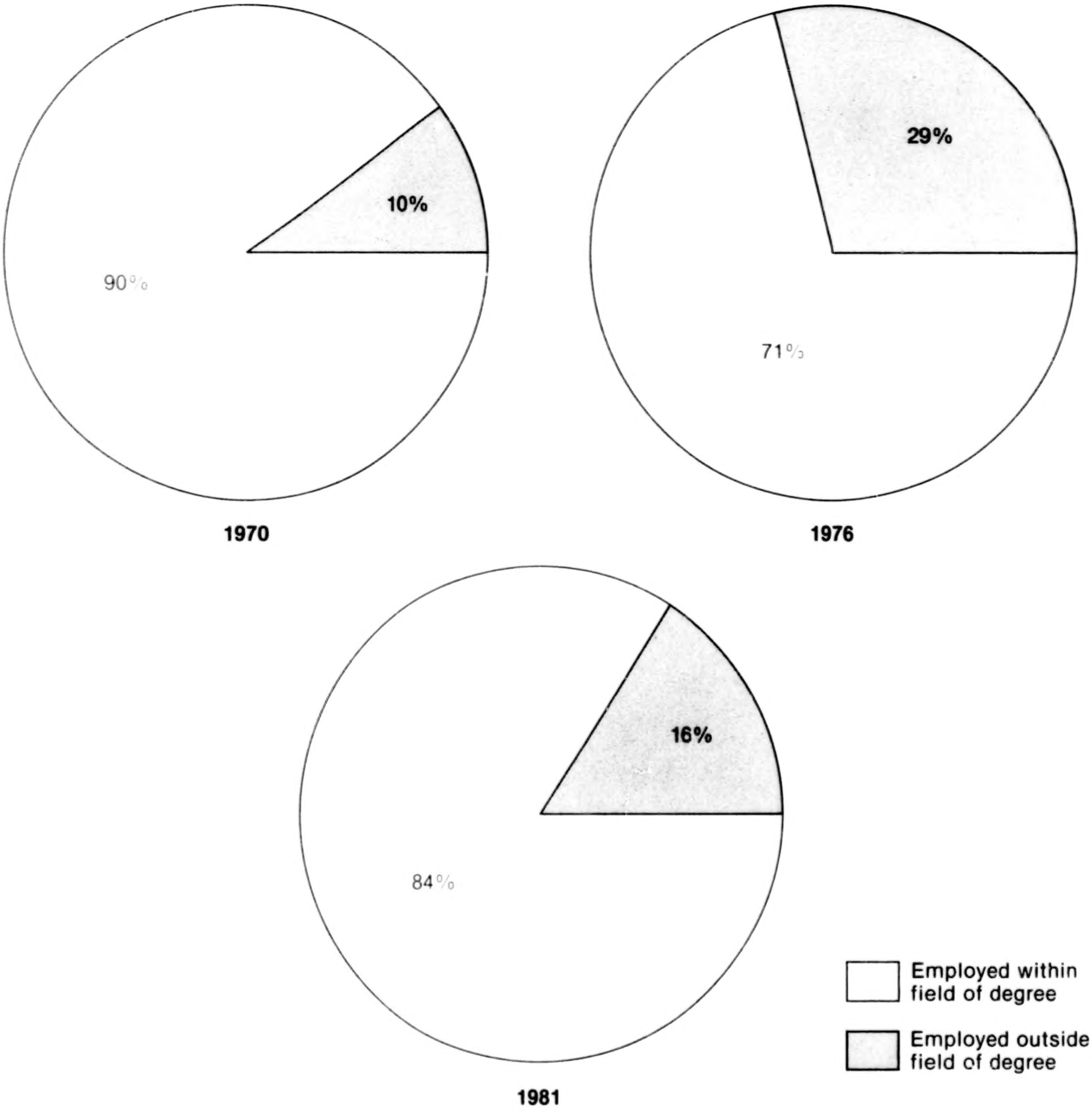
SOURCES: National Science Foundation and National Research Council

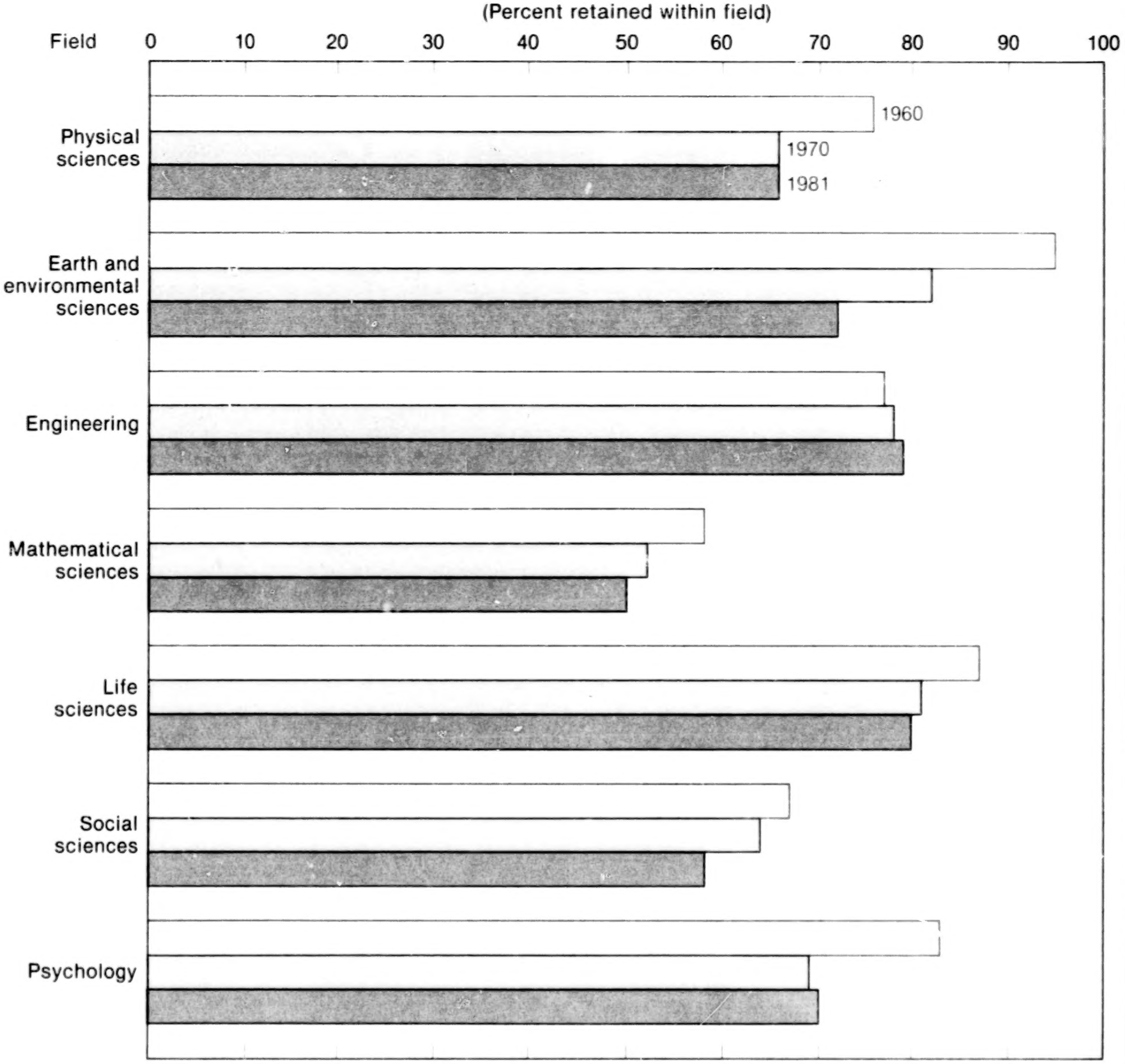
Chart 9. Proportion of new science/engineering doctorates employed within field of degree: selected years



- Most science/engineering (S/E) doctorates obtain employment in their field of degree. The proportions of men and women S/E doctorates obtaining immediate employment within their field of degree do not differ significantly.

SOURCES: National Science Foundation and National Research Council

Chart 10. Proportion of new science/engineering doctorates obtained in same field as that of baccalaureate: selected years[a]



- Most science engineering (S E) doctorates earned their graduate degree within the same field as their baccalaureate degree. The proportion, however, has apparently declined since 1960. Engineering was the only exception.

---

[a] Only doctorates whose baccalaureate-granting institution is known are included in this chart.

SOURCES: National Science Foundation and National Research Council

statistical tables

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Table 1. New science and engineering doctorates by subfield and sex: 1960-81

Total, male and female

Field of study	Year of doctorate 1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, science & engineering	6263	6721	7438	8220	9224	10476	11458	12982	14448	16039	103269	17743	18948
Physical sciences	1608	1747	1848	2106	2217	2490	2655	3085	3239	3428	24423	3893	3949
Physics and astronomy	530	597	710	818	866	1046	1061	1312	1436	1461	9837	1655	1738
Astronomy & astrophysics[1]	11	16	28	34	45	64	66	64	98	9	435	-	-
Astronomy[1]	-	-	-	-	-	-	-	-	-	36	36	48	59
Astrophysics[1]	-	-	-	-	-	-	-	-	-	67	67	63	54
Atomic & molecular	49	68	81	90	114	112	117	130	135	133	1029	152	124
Electromagnetism[2]	7	20	20	23	36	31	36	32	14	13	232	18	18
Mechanics[3]	1	5	5	7	5	8	5	12	5	10	63	7	6
Acoustics	11	8	7	14	7	7	10	9	10	11	94	23	19
Fluids	4	19	30	22	14	33	33	54	44	24	277	21	21
Plasma[4]	-	-	-	-	-	-	-	1	-	62	63	85	86
Optics	8	7	7	7	8	13	9	13	11	20	103	30	25
Thermal[5]	3	2	4	12	10	21	21	20	12	18	123	17	17
Elementary particles	51	68	115	154	147	184	164	222	232	224	1561	256	277
Nuclear physics[6]	2	2	-	-	-	-	-	-	-	-	4	-	-
Nuclear structure	115	113	151	155	148	157	157	199	197	190	1582	212	226
Solid state	136	123	161	175	212	299	303	369	390	362	2530	403	442
Theoretical physics[7]	88	114	55	3	-	-	-	-	-	-	260	-	-
Physics, general	5	7	24	45	53	36	38	65	138	185	599	160	164
Physics, other	36	25	22	77	67	81	102	122	150	97	779	160	200
Chemistry	1078	1150	1138	1288	1351	1444	1594	1773	1803	1967	14586	2238	2211
Analytical	65	71	92	84	108	89	120	144	129	141	1043	160	174
Inorganic	96	100	98	119	148	153	165	197	232	267	1575	303	297
Organic	468	506	478	516	528	612	665	714	730	769	5986	843	810
Nuclear chemistry	13	31	24	36	31	26	27	26	29	29	272	34	36
Physical	318	310	343	366	379	427	433	480	463	461	3980	558	502
Theoretical chemistry	11	20	19	25	27	27	30	41	49	45	294	64	65
Agricultural and food[8]	32	42	26	40	48	36	51	59	44	50	428	62	58
Pharmaceutical	34	37	38	50	44	48	59	64	45	51	470	58	66
Polymer[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	30	11	11	37	18	11	20	17	51	99	305	87	102
Chemistry, other	11	22	9	15	20	15	24	31	31	55	233	69	101
Earth, env & marine sciences	253	246	249	322	310	375	404	418	442	507	3526	510	552
Mineral, petrol, geochem[10]	68	78	68	94	68	99	100	91	81	8	755	-	-
Mineralogy, petrology[10]	-	-	-	-	-	-	-	-	-	50	50	57	48
Geochemistry[10]	-	-	-	-	-	-	-	-	1	40	41	40	53
Stratigraphy, sediment	75	61	42	57	61	57	59	63	52	45	572	56	67
Paleontology	21	16	30	39	26	41	46	39	48	33	339	40	32
Structural geology	8	7	17	17	15	20	28	36	19	27	194	12	28
Geophysics	26	35	19	20	26	25	32	31	34	68	316	67	66
Geophysics, solid earth.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Geomorph & glacial geol.	10	6	12	9	10	18	8	11	17	14	115	17	23
Hydrology & water res[12]	1	4	2	3	4	4	6	14	10	17	65	20	28
Oceanography	6	8	14	15	18	29	39	48	49	42	268	66	53
Marine science, other[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology[14]	23	14	17	21	32	34	34	40	47	48	310	55	59
Atmospheric phys & chem.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric sci, other[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]	15	17	22	26	30	32	28	24	38	1	233	-	-
Applied geology[15]	-	-	-	-	-	-	-	-	-	27	27	17	27
Fuel technology	-	-	-	-	-	-	-	3	9	11	23	12	16
Earth science, general	-	-	6	9	12	7	12	11	21	43	121	29	27
Earth science, other	-	-	0	12	8	9	12	7	16	33	97	22	25
Engineering	794	940	1216	1357	1664	2074	2301	2604	2855	3265	19070	3434	3498
Aeronaut & astronautical[16]	23	40	53	66	70	82	109	142	166	197	948	204	198
Agricultural	23	17	14	19	28	30	39	33	37	43	283	56	61
Biomedical[17]	-	-	-	-	-	-	-	-	-	37	37	45	71
Chemical	181	187	240	243	276	369	367	327	368	411	2969	445	391
Civil	62	91	125	127	193	209	237	270	301	309	1924	311	379
Ceramic	14	16	23	19	24	31	37	49	39	44	296	46	44
Computer[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	160	209	232	289	345	398	470	533	607	698	3941	706	745
Electronics	41	40	64	89	97	100	99	142	134	131	937	151	117
Industrial	14	21	21	22	28	56	46	61	74	111	454	117	134
Nuclear engineering[19]	-	-	-	-	-	-	-	-	-	120	120	118	120
Engineering mechanics	46	72	103	94	131	177	186	221	228	243	1501	235	213
Engineering physics[19]	26	26	41	60	79	96	131	138	126	57	780	41	38
Mechanical	98	100	148	154	183	249	271	316	369	403	2291	400	398
Metallurgy & phys met[20]	77	77	103	116	114	173	174	218	176	214	1442	222	210
Systems design[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[21]	-	-	-	-	-	-	-	-	-	-	-	-	1
Fuel technology[22]	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	12	24	21	24	34	35	56	37	67	55	365	55	48
Textile[24]	-	-	-	-	-	-	-	-	1	-	1	-	-
Mining[25]	-	-	-	-	-	-	-	-	-	10	10	10	15
Materials science[17]	-	-	-	-	-	-	-	-	-	22	22	35	52
Engineering, general	1	3	2	5	6	6	6	24	33	38	124	38	34
Engineering, other	16	17	26	30	56	63	73	93	129	122	625	199	229

See footnotes at end of table.

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Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Total, male and female

Field of study	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, science & engineering .	19009	19001	18313	18350	17864	17418	17048	17245	180947	17199	17623	34822	319038
Physical sciences	3653	3444	3136	3076	2861	2721	2611	2674	32018	2521	2626	5147	61588
Physics and astronomy	1634	1589	1339	1300	1237	1150	1067	1108	13817	983	1015	1998	25652
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	435
Astronomy	63	64	57	60	78	63	64	58	614	52	50	102	752
Astrophysics	66	67	76	71	72	57	74	57	657	69	59	128	852
Atomic & molecular	150	122	122	140	116	105	88	72	1191	69	65	134	2354
Electromagnetism	11	13	8	10	12	9	10	6	115	-	-	-	347
Mechanics	7	6	4	3	4	-	-	-	37	-	-	-	100
Acoustics	20	15	13	12	9	12	14	13	150	23	13	36	280
Fluids	28	28	20	22	20	14	13	14	201	15	14	29	507
Plasma	93	73	57	53	75	72	68	62	724	59	65	124	911
Optics	31	33	24	33	50	31	33	46	336	43	54	97	536
Thermal	18	16	16	9	4	7	11	7	122	5	7	12	257
Elementary particles ...	198	222	146	126	130	138	135	121	1749	117	117	234	3544
Nuclear physics	-	-	-	-	-	-	-	-	-	-	-	-	4
Nuclear structure	234	182	145	130	96	94	77	103	1499	73	62	135	3216
Solid state	393	400	349	321	282	258	243	243	3334	201	250	451	6315
Theoretical physics	-	-	-	-	-	-	-	-	-	-	-	-	260
Physics, general	154	206	180	173	175	173	151	194	1730	165	172	337	2666
Physics, other	168	142	122	137	114	117	86	112	1358	92	87	179	2316
Chemistry	2019	1855	1797	1776	1624	1571	1546	1566	18201	1538	1611	3149	35936
Analytical	147	128	147	142	152	174	178	207	1609	185	229	414	3066
Inorganic	289	262	201	229	226	198	201	195	2401	189	188	377	4353
Organic	714	665	615	605	497	479	454	469	6131	484	490	974	13091
Nuclear chemistry	22	24	31	21	25	24	13	14	244	14	12	26	542
Physical	472	457	389	393	355	339	310	326	4101	282	275	557	8638
Theoretical chemistry ..	67	53	51	46	48	38	46	50	528	47	33	80	902
Agricultural and food ..	22	9	13	8	14	6	8	11	211	-	-	-	639
Pharmaceutical	48	50	65	66	55	50	51	43	552	52	52	104	1126
Polymer	-	14	35	40	42	55	57	67	310	61	61	122	432
Chemistry, general	133	140	197	169	144	146	161	126	1405	157	197	354	2064
Chemistry, other	105	73	53	57	66	62	65	58	709	67	74	141	1083
Earth, env & marine sciences	604	634	629	634	645	694	623	64[illegible]	6171	628	582	1210	10907
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	755
Mineralogy, petrology ..	61	47	41	43	48	60	34	33	472	47	30	77	599
Geochemistry	37	42	46	49	49	57	51	57	481	51	48	99	621
Stratigraphy, sediment .	51	55	48	43	57	42	32	34	485	40	42	82	1139
Paleontology	35	44	41	41	43	26	31	36	369	21	19	40	748
Structural geology	24	21	15	16	22	22	28	28	216	20	27	47	457
Geophysics	78	67	80	92	33	-	-	-	483	-	-	-	799
Geophysics, solid earth.	-	-	-	-	40	73	60	81	254	71	72	143	397
Geomorph & glacial geol.	19	27	23	30	29	22	24	14	228	15	13	28	371
Hydrology & water res ..	13	30	17	18	15	23	31	20	215	27	21	48	328
Oceanography	78	88	81	86	89	113	98	91	843	85	70	155	1266
Marine science, other ..	-	-	-	-	-	-	28	31	68	25	30	55	123
Meteorology	78	58	57	45	23	-	-	-	375	-	-	-	685
Atmospheric phys & chem.	-	-	-	-	16	15	22	16	69	19	15	34	103
Atmospheric dynamics ...	-	-	-	-	14	32	21	26	93	20	27	47	140
Atmospheric sci, other .	-	-	-	-	23	46	34	42	145	51	31	82	227
Environ science, general	1	42	49	62	34	25	16	22	251	15	30	45	296
Environ science, other .	21	13	4	15	27	29	29	31	169	25	24	49	218
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	233
Applied geology	41	22	31	22	23	20	15	19	237	27	21	48	312
Fuel technology	6	10	14	9	4	5	2	4	82	-	-	-	105
Earth science, general .	29	41	55	32	33	44	45	37	372	48	46	94	587
Earth science, other ...	32	27	27	31	23	31	22	24	264	21	16	37	398
Engineering	3503	3364	3147	3002	2834	2643	2423	2490	30338	2479	2528	5007	54415
Aeronaut & astronautical	181	167	148	141	122	115	103	81	1460	81	97	178	2586
Agricultural	67	75	52	56	37	33	43	66	546	68	62	130	959
Biomedical	77	71	62	76	73	75	79	69	698	68	63	131	866
Chemical	385	408	388	370	314	306	261	287	3555	285	296	581	7105
Civil	362	357	324	290	314	269	236	236	3078	240	287	527	5529
Ceramic	31	26	26	22	24	30	24	24	297	24	24	48	641
Computer	-	-	-	102	119	123	76	78	498	62	71	133	631
Electrical	690	673	594	536	512	461	410	450	5777	405	411	816	10534
Electronics	125	114	84	76	80	83	53	83	966	73	67	140	2043
Industrial	142	109	92	92	67	73	51	82	959	77	66	143	1556
Nuclear	117	129	111	89	134	105	107	95	1125	112	130	242	1487
Engineering mechanics ..	208	177	167	162	113	102	95	85	1557	91	78	169	3227
Engineering physics	39	34	25	19	19	20	15	17	267	18	22	40	1087
Mechanical	408	364	377	325	304	270	282	281	3409	293	282	575	6275
Metallurgy	175	141	138	118	111	93	98	87	1393	106	99	205	3040
Systems design	-	-	-	79	69	71	63	75	357	61	68	129	486
Operations research	62	104	128	89	82	76	84	67	693	63	80	143	836
Fuel technology	-	6	16	17	17	18	19	24	117	31	21	52	169
Sanitary & environmental	75	78	66	71	74	67	67	66	667	66	71	137	1169
Textile	-	-	-	-	-	-	-	-	-	-	-	-	1
Mining	16	12	2	7	6	2	7	4	81	4	8	12	103
Materials science	88	132	116	132	117	125	125	125	1047	143	113	256	1325
Engineering, general ...	33	37	54	38	41	33	44	32	384	42	37	79	587
Engineering, other	222	150	177	95	85	93	81	76	1407	66	75	141	2173

See footnotes at end of table.

Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Total, male and female

Field of study	Year of doctorate												
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Mathematical sciences	291	332	388	483	588	685	769	830	971	1070	6407	1225	1238
Algebra	35	25	60	78	72	97	125	131	145	181	949	191	200
Analysis & funct anal[26].	71	92	101	114	178	164	183	203	244	266	1616	244	261
Geometry	12	13	21	14	26	23	22	28	31	25	215	40	35
Logic	2	7	13	16	15	26	22	24	30	28	183	36	32
Number theory	11	13	19	20	20	17	20	17	20	24	181	27	33
Probability & math stat.[27]	64	67	66	70	100	103	121	123	130	50	894	85	97
Topology	26	18	37	46	57	91	87	96	106	108	672	143	121
Topological algebra[28]	17	13	11	20	14	19	15	9	-	-	118	-	-
Computing theory	4	11	6	13	14	17	18	42	51	79	255	119	140
Computer science[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[29]	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	31	53	42	64	68	91	111	110	133	128	831	147	122
Mathematics, general	13	13	10	12	13	19	20	32	52	92	276	95	108
Mathematics, other	5	7	2	16	11	18	25	15	29	89	217	98	89
Life sciences	1660	1682	1867	1976	2219	2539	2711	2966	3511	3815	24946	4165	4556
Biological sciences	1246	1244	1397	1510	1702	1963	2135	2360	2827	3092	19476	3361	3653
Biochemistry	259	274	286	303	369	393	458	501	580	553	3976	583	658
Biophysics	23	25	33	36	40	54	80	92	105	114	602	106	102
Biometry, biostatistics.	11	7	10	14	22	24	21	26	23	19	177	38	43
Anatomy	31	45	49	52	56	88	66	85	87	120	679	124	154
Cytology[30]	-	-	18	21	27	31	30	36	34	47	244	56	55
Embryology	2	1	8	15	22	20	38	37	36	38	217	41	37
Immunology[31]	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	118	116	98	108	133	143	159	130	191	188	1384	177	202
Ecology	30	32	39	45	38	35	34	55	80	89	477	112	118
Hydrobiology[8]	5	3	3	16	7	15	12	17	8	9	95	28	27
Microbiology & bacteriol[32]	184	176	199	210	194	274	288	332	361	383	2601	399	408
Animal & plant physiol[33].	122	131	54	-	-	-	-	-	-	-	307	-	-
Animal physiology[33]	2	2	77	136	182	193	187	240	288	321	1628	345	360
Plant physiology[33]	5	-	29	71	53	76	74	73	85	88	554	96	90
Nutrition[34]	23	1	1	2	-	-	-	-	-	-	27	-	-
Zoology	175	169	187	187	204	226	268	231	312	263	2242	341	355
Genetics	73	73	81	97	98	102	113	144	152	127	1060	150	153
Entomology	95	95	102	86	105	134	128	146	154	178	1223	178	218
Molecular biology[17]	-	-	-	-	-	1	-	-	-	90	91	95	109
Nutrition/dietetics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	11	22	23	21	31	36	38	48	54	40	324	40	69
Pharmacology	53	49	74	71	90	99	106	115	147	154	958	150	175
Biological sci, general.	13	5	10	2	6	3	11	24	59	97	230	121	164
Biological sci, other	11	18	16	17	25	16	24	28	71	154	380	181	156
Agricultural sciences	414	438	470	466	517	576	576	606	684	723	5470	804	903
Agronomy	135	143	141	138	155	168	171	174	168	173	1566	198	191
Animal husbandry[17]	107	121	113	110	123	144	143	126	140	97	1224	124	94
Food sci & technology	-	-	-	-	-	-	-	-	-	39	39	37	77
Fish & wildlife	17	14	22	21	24	13	21	32	25	37	226	47	61
Forestry	25	30	36	27	46	44	46	60	74	78	466	75	84
Horticulture	47	46	55	44	57	75	71	62	63	69	589	69	75
Soils & soil science[35]	-	-	-	-	-	-	-	-	3	37	40	41	57
Animal sci & nutrition[36].	-	-	-	-	-	-	-	-	-	1	1	-	-
Phytopathology	70	72	83	92	72	96	88	87	100	111	871	106	109
Agriculture, general	2	1	1	2	3	4	3	2	9	17	44	4	2
Agriculture, other	11	11	19	32	37	32	33	63	102	64	404	103	153
Social sciences	885	954	1014	1086	1213	1359	1479	1784	1966	2188	13928	2626	3010
Anthropology	69	55	81	82	83	82	97	147	138	181	1015	217	239
Archeology	8	5	6	9	10	10	12	12	17	11	100	8	18
Hist & phil of science[37].	-	-	-	-	-	-	-	-	-	-	-	-	35
Linguistics	45	46	46	45	64	71	99	92	114	116	738	137	175
Sociology	162	167	184	211	201	239	260	331	370	413	2538	505	587
Economics	341	405	403	423	512	537	600	661	717	687	5286	826	793
Econometrics	11	8	15	27	15	23	27	30	30	21	207	27	27
Agricultural economics[17].	-	-	-	-	-	-	-	-	-	92	92	114	170
Statistics[38]	-	-	-	-	-	-	-	16	21	97	134	121	133
Geography	64	50	56	58	64	71	55	75	87	115	695	137	158
Pol sci, public admin[39].	185	218	223	231	264	326	329	420	472	455	3123	534	675
Political science[39]	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	772	820	856	890	1013	954	1139	1295	1464	1766	10969	1890	2145
Clinical	241	299	293	303	400	335	373	420	485	525	3674	549	622
Counseling & guidance	69	67	60	47	47	47	56	75	103	108	679	113	146
Developmental & gerontol	22	20	26	20	19	28	43	47	62	72	359	54	114
Educational	60	75	55	35	37	34	47	59	73	75	550	88	96
School	7	15	9	17	22	16	10	31	25	33	185	45	70
Exper, compar, physiol[40].	196	171	77	3	3	4	1	2	-	-	457	-	-
Experimental[40]	-	4	110	196	222	215	268	283	295	323	1916	365	396
Comparative[40]	-	0	15	19	11	11	9	16	17	17	115	22	15
Physiological[40]	-	1	25	50	37	43	74	85	93	109	517	116	130
Human engineering[41]	5	4	4	1	0	0	3	0	0	-	17	-	-
Industrial & personnel	34	27	36	41	50	37	48	58	46	59	436	75	68
Personality	11	18	27	29	36	28	36	32	31	37	285	50	46
Psychometrics	15	20	19	15	22	17	27	15	19	19	188	18	36
Social	80	68	81	92	88	100	106	108	123	183	1029	157	172
Psychology, general	27	25	15	16	13	31	28	42	70	128	395	122	127
Psychology, other	8	6	4	6	6	8	10	19	22	78	167	85	107
Total, non-sci & engineering[42].	3470	3692	4062	4509	5101	5864	6491	7421	8488	9704	58802	11755	12919
Total, all fields	9733	10413	11500	12729	14325	16340	17949	20403	22936	25743	162071	29495	31867

See footnotes at end of table.

Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Total, male and female

Field of study	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Mathematical sciences	1281	1233	1211	1147	1003	964	959	979	11240	962	960	1922	19569
Algebra	167	142	125	126	116	88	87	88	1330	78	54	132	2411
Analysis & funct anal ..	241	244	208	180	141	153	118	111	1901	91	105	196	3713
Geometry	35	32	38	26	23	26	22	25	302	35	29	64	581
Logic	39	33	19	38	34	[illegible]	24	21	293	24	18	42	518
Number theory	36	31	23	27	26	32	18	17	270	28	24	52	503
Probability & math stat.	151	157	148	174	165	159	168	165	1469	151	163	314	2677
Topology	130	111	117	94	72	70	56	61	975	57	55	112	1759
Topological algebra	-	-	-	-	-	-	-	-	-	-	-	-	118
Computing theory	163	225	203	166	148	101	55	25	1345	13	16	29	1629
Computer science	-	1	-	-	-	31	121	210	363	218	232	450	813
Operations research	-	3	24	55	36	42	43	43	246	41	35	76	322
Applied mathematics	119	119	136	101	105	113	108	111	1181	102	118	220	2232
Mathematics, general ...	112	94	122	114	94	88	92	80	999	83	80	163	1438
Mathematics, other	88	41	48	46	43	44	47	22	566	41	31	72	855
Life sciences	4454	4503	4304	4402	4361	4266	4369	4501	43881	4716	4783	9499	78326
Biological sciences	3600	3648	3484	3497	3573	3484	3516	3646	35462	3804	3801	7605	62543
Biochemistry	585	635	599	620	617	609	607	603	6116	673	644	1317	11409
Biophysics	114	115	122	112	123	141	110	133	1178	108	99	207	1987
Biometry, biostatistics.	30	35	36	37	46	52	45	44	706	42	48	90	673
Anatomy.................	159	127	122	119	133	116	144	151	1349	147	156	303	2331
Cytology	36	39	40	41	46	37	33	39	422	44	47	91	757
Embryology	35	29	22	27	13	19	15	14	252	18	20	38	507
Immunology	18	50	69	71	93	101	94	134	630	125	149	274	904
Botany	195	210	177	155	182	158	148	141	1745	144	147	291	3420
Ecology	134	134	149	142	140	163	170	173	1435	169	197	366	2278
Hydrobiology	24	11	17	8	13	14	3	10	155	-	-	-	250
Microbiology & bacteriol	397	382	382	363	362	312	349	349	3703	366	353	719	7023
Animal & plant physiol .	-	-	-	-	-	-	-	-	-	-	-	-	307
Animal physiology	343	357	313	332	285	321	315	314	3285	340	327	667	5580
Plant physiology	75	92	77	67	62	43	43	57	702	52	68	120	1376
Nutrition	-	-	-	-	-	-	-	-	-	-	-	-	27
Zoology	356	331	260	271	258	254	231	249	2906	226	197	423	5571
Genetics	160	128	126	156	143	141	126	141	1424	157	157	314	2798
Entomology	195	184	175	170	145	153	146	162	1726	161	143	304	3253
Molecular biology	155	119	140	156	148	131	172	140	1365	183	185	368	1824
Nutrition/dietetics	-	-	-	-	85	82	90	107	364	90	99	189	553
Parasitology	-	19	26	18	19	17	13	21	133	22	18	40	173
Pathology	89	79	81	67	94	99	90	85	793	108	106	214	1331
Pharmacology	188	160	176	166	205	196	216	220	1852	257	280	537	3347
Biological sci, general.	137	194	191	185	190	178	191	187	1738	209	207	416	2384
Biological sci, other ..	175	218	184	214	171	147	165	172	1783	163	154	317	2480
Agricultural sciences	854	855	820	905	788	782	853	855	8419	912	982	1894	15783
Agronomy	142	153	132	134	146	123	137	138	1494	151	177	328	3388
Animal husbandry	68	35	17	21	17	25	21	26	448	25	19	44	1716
Food sci & technology ..	81	92	101	111	91	107	117	107	921	102	104	206	1166
Fish & wildlife	49	48	54	63	55	66	61	66	570	73	66	139	935
Forestry	74	79	74	86	79	66	88	87	792	80	95	175	1433
Horticulture	85	50	44	77	51	60	65	69	645	73	85	158	1392
Soils & soil science ...	85	102	90	97	69	72	97	71	781	79	90	169	990
Animal sci & nutrition .	68	113	136	130	119	101	101	112	880	119	149	268	1149
Phytopathology	93	102	91	100	83	82	89	88	943	118	99	217	2031
Agriculture, general ...	5	4	5	8	9	6	6	7	56	3	5	8	108
Agriculture, other	104	77	76	78	69	74	71	84	889	89	93	182	1475
Social sciences	3234	3365	3288	3346	3277	3140	3008	2864	31158	2795	2787	5582	50668
Anthropology	260	326	379	386	428	386	399	383	3403	370	369	739	5157
Archeology	18	21	20	23	22	23	32	35	220	26	28	54	374
Hist & phil of science .	39	30	33	27	36	29	25	28	282	21	26	47	329
Linguistics	160	208	168	194	152	190	175	156	1715	182	176	358	2811
Sociology	639	599	645	680	734	725	610	632	6356	602	603	1205	10099
Economics	862	912	834	868	855	811	778	780	8319	744	807	1551	15156
Econometrics	33	31	19	27	30	29	23	22	268	22	17	39	514
Agricultural economics .	162	178	182	162	162	143	159	154	1586	160	168	328	2006
Statistics	85	65	37	43	35	35	46	23	623	33	39	72	829
Geography	177	215	195	187	155	155	158	129	1666	130	109	239	2600
Pol sci, public admin ..	799	780	775	748	40	-	-	-	4351	-	-	-	7474
Political science	-	-	1	1	628	614	603	522	2369	505	445	950	3319
Psychology	2280	2458	2598	2751	2883	2990	3055	3091	26141	3098	3357	6455	43565
Clinical	679	746	771	810	883	936	1061	1069	8126	1106	1256	2362	14162
Counseling & guidance ..	151	200	201	231	267	269	278	315	2171	299	351	650	3500
Developmental & gerontol	135	149	162	181	190	203	208	221	1647	207	200	407	2413
Educational	127	115	122	134	124	136	145	163	1250	137	180	317	2117
School	89	109	89	103	143	148	125	125	1046	176	133	309	1540
Exper, compar, physiol .	-	-	-	-	-	-	-	-	-	-	-	-	457
Experimental	353	333	354	351	357	337	299	293	3439	307	282	589	5944
Comparative	21	24	23	22	28	22	20	21	218	8	11	19	352
Physiological	121	122	118	124	133	132	126	102	1224	108	102	210	1951
Human engineering	-	-	-	-	-	-	-	-	-	-	-	-	17
Industrial & personnel .	55	76	80	63	73	81	74	87	732	66	87	153	1321
Personality	51	51	60	62	62	63	41	42	528	43	49	92	905
Psychometrics	25	24	24	17	27	19	15	25	230	21	27	48	466
Social	183	214	202	233	209	202	204	216	1992	190	180	370	3391
Psychology, general	133	155	250	244	218	263	299	207	2018	210	283	493	2906
Psychology, other	157	140	142	176	169	179	160	205	1520	220	216	436	2123
Total, non-sci & engineering .	14035	14755	14734	14593	15082	14300	13825	13990	139988	13817	13696	27513	226303
Total, all fields	33044	33756	33047	32951	32946	31718	30873	31235	320935	31016	31319	62335	545341

See footnotes at end of table.

Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Male

Field of study	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
	Year of doctorate												
Total, science & engineering .	5820	6227	6901	7621	8532	9732	10549	11896	13150	14556	94984	16117	17007
Physical sciences	1551	1684	1774	2013	2119	2364	2535	2930	3064	3242	23276	3666	3718
Physics and astronomy	521	590	696	807	852	1019	1039	1275	1402	1422	9623	1610	1682
Astronomy & astrophysics[1]	11	15	27	33	42	59	63	59	89	9	407	-	-
Astronomy[1].............	-	-	-	-	-	-	-	-	-	34	34	45	54
Astrophysics[1]...........	-	-	-	-	-	-	-	-	-	62	62	58	51
Atomic & molecular	46	66	81	89	114	106	117	128	131	130	1008	149	122
Electromagnetism[2].......	7	20	20	23	36	30	35	31	14	13	229	18	18
Mechanics[3].............	1	5	5	7	5	8	5	12	5	10	63	7	6
Acoustics	11	8	7	14	7	7	10	9	10	11	94	23	19
Fluids	4	17	29	21	14	32	33	52	44	23	269	20	20
Plasma[4]................	-	-	-	-	-	-	-	1	0	62	63	85	85
Optics	8	7	7	7	8	13	9	13	11	18	101	30	25
Thermal[5]...............	2	2	4	12	10	20	20	20	12	17	119	16	17
Elementary particles ...	51	68	111	152	145	180	164	215	226	214	1526	248	265
Nuclear physics[6]........	2	2	-	-	-	-	-	-	-	-	4	-	-
Nuclear structure	113	112	149	153	147	155	152	194	195	187	1557	206	218
Solid state	134	122	159	174	209	295	295	360	384	359	2491	392	428
Theoretical physics[7]....	88	114	52	3	-	-	-	-	-	-	257	-	-
Physics, general	7	7	24	43	50	35	37	62	135	180	580	156	160
Physics, other	36	25	21	76	65	79	99	119	146	93	759	157	194
Chemistry	1030	1094	1078	1206	1267	1345	1496	1655	1662	1820	13653	2056	2036
Analytical	61	66	84	78	100	85	115	131	123	131	974	151	166
Inorganic	92	89	90	112	139	143	154	176	208	244	1447	275	269
Organic	452	486	458	483	497	578	621	678	680	720	5653	787	748
Nuclear chemistry	13	29	20	35	30	23	27	26	29	27	259	32	32
Physical	304	296	326	343	355	387	408	448	420	423	3710	509	463
Theoretical chemistry ..	11	20	19	24	23	22	28	39	45	39	270	58	56
Agricultural and food[8]..	31	41	25	35	46	35	48	54	43	46	404	50	51
Pharmaceutical	33	36	36	48	43	46	56	60	43	51	452	53	62
Polymer[9]...............	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	24	10	11	34	16	11	16	15	47	90	274	78	91
Chemistry, other	9	21	9	14	18	15	23	28	24	49	210	63	98
Earth, env & marine sciences	250	244	244	318	305	374	392	412	431	487	3457	494	538
Mineral, petrol, geochem[10]	68	78	66	90	65	98	96	90	77	7	735	-	-
Mineralogy, petrology[10]..	-	-	-	-	-	-	-	-	-	44	44	53	48
Geochemistry[10]...........	-	-	-	-	-	-	-	-	1	37	38	39	50
Stratigraphy, sediment .	74	61	41	57	61	57	57	63	52	45	568	56	63
Paleontology	20	14	28	39	26	41	44	39	46	33	330	38	30
Structural geology	8	7	17	17	15	20	28	35	18	25	190	12	27
Geophysics	26	35	19	20	26	25	31	31	34	68	315	66	65
Geophysic, solid earth[11].	-	-	-	-	-	-	-	-	-	-	-	-	-
Geomorph & glacial geol.	10	6	12	9	9	18	7	11	17	12	111	17	23
Hydrology & water res[12]..	1	4	2	3	4	4	5	14	10	17	64	20	28
Oceanography	6	8	14	15	18	29	39	47	48	39	263	64	52
Marine sciences, other[13].	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology[14]............	23	14	17	21	31	34	33	39	46	48	306	52	59
Atmospheric phys & chem.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics[11]...	-	-	-	-	-	-	-	-	-		-	-	-
Atmospheric sci, other[11].	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other .	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]........	14	17	22	26	30	32	28	24	38	1	232	-	-
Applied geology[15]........	-	-	-	-	-	-	-	-	-	26	26	17	27
Fuel technology[15]........	-	-	-	-	-	-	-	3	9	11	23	11	15
Earth science, general .	-	-	6	9	12	7	12	10	19	41	116	28	27
Earth science, other ...	-	-	0	12	8	9	12	6	16	33	96	21	24
Engineering	791	936	1212	1347	1654	2067	2293	2595	2843	3255	18993	3419	3483
Aeronaut & astronautical[16]	22	40	53	63	69	82	109	142	165	197	942	202	195
Agricultural	23	17	14	19	28	30	39	33	37	43	283	56	61
Biomedical[17].............	-	-	-	-	-	-	-	-	-	37	37	45	71
Chemical	181	187	239	240	274	369	365	324	365	408	2952	443	388
Civil	61	91	125	125	192	207	237	269	301	309	1917	310	378
Ceramic	14	16	22	19	24	30	37	49	38	44	293	46	44
Computer[18]...............	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	159	208	232	288	342	397	468	533	607	696	3930	705	742
Electronics	41	40	63	89	96	100	99	142	134	130	934	149	116
Industrial	14	21	21	22	28	56	46	59	73	110	450	117	132
Nuclear[19]................	-	-	-	-	-	-	-	-	-	120	120	117	120
Engineering mechanics ..	46	71	103	94	130	176	185	220	226	243	1494	234	213
Engineering physics[19]....	26	26	41	59	79	96	131	138	125	57	778	40	38
Mechanical	98	100	148	154	183	248	271	315	369	403	2289	399	398
Metallurgy & phys met[20].	77	77	102	116	114	172	172	217	175	213	1435	221	209
Systems design[18].........	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[21]...	-	-	-	-	-	-	-	-	-	-	-	-	1
Fuel technology[22]........	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	12	23	21	24	34	35	56	37	67	54	363	55	48
Textile[24]................	-	-	-	-	-	-	-	-	1	0	1	0	0
Mining[25].................	-	-	-	-	-	-	-	-	-	10	10	10	15
Materials science[17]......	-	-	-	-	-	-	-	-	-	22	22	35	52
Engineering, general ...	1	3	2	5	6	6	6	24	32	38	123	38	34
Engineering, other	16	16	26	30	55	63	72	93	128	121	620	197	228

See footnotes at end of table.

Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Male

Field of study	Year of doctorate												
	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, science & engineering .	16906	16551	15706	15522	14883	14311	13735	13662	154400	13398	13602	27000	276384
Physical sciences	3404	3209	2902	2812	2617	2477	2364	2382	29551	2199	2318	4517	57344
Physics and astronomy ...	1588	1533	1282	1230	1182	1086	1015	1035	13243	916	942	1858	24724
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	407
Astronomy	59	60	52	52	71	56	60	52	561	45	43	88	683
Astrophysics	62	65	75	67	68	55	71	55	627	63	55	118	807
Atomic & molecular	147	119	118	135	114	99	86	66	1155	69	57	126	2289
Electromagnetism	11	13	8	8	12	9	10	6	113	-	-	-	342
Mechanics	7	5	3	3	4	-	-	-	35	-	-	-	98
Acoustics	20	14	13	11	9	12	14	12	147	21	11	32	273
Fluids	28	28	19	21	19	14	12	13	194	15	11	26	489
Plasma	92	69	57	53	74	70	61	60	706	57	63	120	889
Optics	31	33	23	32	48	30	33	45	330	41	53	94	525
Thermal	17	13	16	9	4	7	11	7	117	5	7	12	248
Elementary particles ...	192	218	135	120	124	129	132	114	1677	112	109	221	3424
Nuclear physics	-	-	-	-	-	-	-	-	-	-	-	-	4
Nuclear structure	230	175	144	127	88	90	73	99	1450	67	59	126	3133
Solid state	383	388	330	303	269	246	226	226	3191	187	230	417	6099
Theoretical physics	-	-	-	-	-	-	-	-	-	-	-	-	257
Physics, general	148	198	171	158	168	163	143	177	1642	156	162	318	2540
Physics, other	161	135	118	131	110	106	83	103	1298	78	82	160	2217
Chemistry	1816	1676	1620	1582	1435	1391	1349	1347	16308	1283	1376	2659	32620
Analytical	131	120	140	130	142	161	161	180	1482	162	199	361	2817
Inorganic	258	229	174	195	200	169	174	160	2103	157	153	310	3860
Organic	665	599	567	561	455	431	399	415	5627	410	430	840	12120
Nuclear chemistry	20	23	29	20	24	18	11	13	222	13	12	25	506
Physical	418	404	344	341	300	298	268	273	3618	226	224	450	7778
Theoretical chemistry ..	57	48	44	37	42	33	39	47	461	40	27	67	798
Agricultural and food ..	16	8	11	8	11	6	6	9	176	-	-	-	580
Pharmaceutical	40	44	59	57	46	45	46	37	489	37	47	84	1025
Polymer	-	14	33	37	40	53	53	62	292	56	57	113	405
Chemistry, general	121	124	175	152	120	123	136	102	1222	130	171	301	1797
Chemistry, other	90	63	44	44	55	54	56	49	616	52	56	108	934
Earth, env & marine sciences	582	607	594	604	582	635	562	588	5786	564	526	1090	10333
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	735
Mineralogy, petrology ..	56	45	40	41	47	53	29	30	442	43	25	68	554
Geochemistry	34	42	42	46	46	50	46	47	442	45	43	88	568
Stratigraphy, sediment .	49	51	48	42	51	40	28	31	459	35	35	70	1097
Paleontology	34	38	38	36	36	23	25	27	325	16	18	34	689
Structural geology	23	20	15	15	21	21	24	26	204	19	26	45	439
Geophysics	75	66	76	90	31	-	-	-	469	-	-	-	784
Geophysics, solid earth.	-	-	-	-	38	66	54	76	234	69	67	136	370
Geomorph & glacial geol.	19	27	21	30	26	22	23	12	220	13	11	24	355
Hydrology & water res ..	13	30	16	18	15	23	31	20	214	24	20	44	322
Oceanography	77	84	73	83	75	108	90	82	788	75	63	138	1189
Marine science, other ..	-	-	-	-	-	8	22	30	60	20	28	48	108
Meteorology	76	57	55	43	22	-	-	-	364	-	-	-	670
Atmospheric phys & chem.	-	-	-	-	13	15	22	15	65	18	14	32	97
Atmospheric dynamics ...	-	-	-	-	14	29	20	25	88	17	26	43	131
Atmospheric sci, other .	-	-	-	-	19	40	32	41	132	47	30	77	209
Environ science, general	1	37	44	56	28	24	14	20	224	15	27	42	266
Environ science, other .	20	13	3	13	23	23	24	26	145	19	16	35	180
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	232
Applied geology	41	22	31	22	22	18	14	18	232	27	21	48	306
Fuel technology	6	10	13	9	3	5	2	4	78	-	-	-	101
Earth science, general .	28	39	54	32	30	40	41	36	355	44	42	86	557
Earth science, other ...	30	26	25	28	22	27	21	22	246	18	14	32	374
Engineering	3481	3318	3114	2950	2780	2569	2370	2428	29912	2389	2429	4818	53723
Aeronaut & astronautical	181	165	145	139	122	112	102	81	1444	80	97	177	2563
Agricultural	67	74	52	55	37	33	43	66	544	67	60	127	954
Biomedical	76	70	61	71	71	75	79	68	685	65	60	125	847
Chemical	383	404	380	366	307	297	256	279	3503	271	285	556	7011
Civil	361	351	321	287	310	262	230	234	3044	234	281	515	5476
Ceramic	30	25	24	22	24	27	24	23	289	22	23	45	627
Computer	-	-	-	95	111	114	71	75	466	57	63	120	586
Electrical	686	667	591	527	505	452	399	443	5717	394	397	791	10438
Electronics	124	113	84	76	80	80	52	82	956	72	67	139	2029
Industrial	142	107	91	90	65	68	49	77	938	70	60	130	1518
Nuclear	116	128	110	86	132	103	103	92	1107	111	124	235	1462
Engineering mechanics ..	208	173	165	160	112	99	94	84	1542	88	77	165	3201
Engineering physics	38	33	24	19	19	20	15	16	262	18	20	38	1078
Mechanical	406	361	372	323	301	267	280	277	3384	289	277	566	6239
Metallurgy	173	138	137	118	109	92	96	87	1380	99	94	193	3008
Systems design	-	-	-	79	68	71	62	70	350	58	64	122	472
Operations research	61	101	127	89	79	72	82	61	673	58	73	131	804
Fuel technology	-	6	16	16	17	17	19	23	114	31	21	52	166
Sanitary & environmental	74	75	66	69	72	66	65	64	654	61	67	128	1145
Textile	-	-	-	-	-	-	-	-	-	-	-	-	1
Mining	16	12	2	7	6	2	7	4	81	4	8	12	103
Materials science	88	129	116	127	111	119	122	118	1017	138	102	240	1279
Engineering, general ...	33	37	54	38	41	31	43	31	380	37	36	73	576
Engineering, other	220	149	176	91	81	90	77	73	1382	65	73	138	2140

See footnotes at end of table.

Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Male

Field of study	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
	Year of doctorate												
Mathematical sciences	276	315	366	455	555	635	722	782	924	1014	6044	1148	1142
Algebra	35	24	54	69	64	86	115	119	128	167	861	173	181
Analysis & funct anal[26]..	67	86	96	108	169	156	171	189	235	255	1532	232	239
Geometry	12	13	21	13	24	21	20	27	28	22	201	35	29
Logic	1	7	13	16	13	22	22	22	30	25	171	34	29
Number theory	9	12	16	19	19	13	17	15	17	21	158	24	28
Probability & math stat[27]	60	50	63	63	95	98	115	116	128	50	850	76	89
Topology	25	18	35	45	54	87	84	91	102	103	644	133	112
Topological algebra[28]...	17	12	11	20	14	18	15	9	-	-	116	-	-
Computing theory	3	11	6	13	14	16	17	42	51	77	250	117	137
Computer science[13].......	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[29]...	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	31	52	40	62	67	86	106	108	129	124	805	138	119
Mathematics, general ...	13	12	9	11	13	18	16	31	48	86	257	89	93
Mathematics, other	3	6	2	16	9	14	24	13	28	84	199	97	86
Life sciences	1510	1521	1679	1777	1992	2276	2386	2565	3028	3277	22011	3627	3896
Biological sciences	1103	1086	1216	1316	1483	1712	1818	1971	2351	2566	16622	2846	3022
Biochemistry	222	239	242	254	304	329	372	397	455	448	3262	486	537
Biophysics	20	21	29	35	38	52	76	80	99	102	552	96	92
Biometry, biostatistics.	9	8	9	13	19	22	19	15	21	18	153	30	36
Anatomy	26	34	40	44	49	77	52	70	66	98	556	98	128
Cytology[30]...............	-	-	10	19	21	23	17	25	25	29	169	39	29
Embryology	1	1	7	9	13	13	26	21	26	26	148	28	26
Immunology[31].............	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	106	100	90	96	106	128	139	101	167	158	1191	146	171
Ecology	28	31	38	43	38	33	33	54	76	85	459	106	107
Hydrobiology[8]............	5	3	3	15	7	12	12	17	8	9	91	28	24
Microbiology & bacterial[32]	159	149	166	172	170	223	241	276	280	292	2128	325	334
Animal & plant physiol[33]	115	112	48	-	-	-	-	-	-	-	275	-	-
Animal physiology[33]......	2	1	66	117	159	160	157	203	245	276	1386	303	302
Plant physiology[33].......	5	0	26	67	46	72	69	65	75	76	501	55	79
Nutrition[34]..............	17	1	1	1	-	-	-	-	-	-	20	-	-
Zoology	148	152	160	168	177	199	228	203	254	242	1931	310	299
Genetics	64	56	69	81	88	90	96	116	130	102	900	116	125
Entomology	64	60	100	84	103	132	119	137	144	162	1105	170	206
Molecular biology[17]......	-	-	-	-	-	1	0	0	0	71	72	73	85
Nutrition/dietetics[11]....	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]............	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	11	21	22	19	30	35	37	46	49	36	306	40	63
Pharmacology	51	46	68	61	83	90	95	103	124	135	856	133	153
Biological sci, general.	11	0	4	2	5	7	10	17	48	77	184	96	117
Biological sci, other ..	4	13	12	16	22	16	21	22	59	124	313	136	109
Agricultural sciences	407	435	462	461	509	564	568	594	677	711	5389	791	874
Agronomy	133	143	140	138	155	164	169	173	168	173	1560	196	196
Animal husbandry	103	119	113	109	119	139	143	123	134	45	1204	123	92
Food sci & technology[17]..	-	-	-	-	-	-	-	-	-	39	39	33	66
Fish & wildlife	17	16	22	21	24	13	20	32	25	37	228	45	61
Forestry	26	30	36	27	45	44	46	59	74	78	465	75	84
Horticulture	41	41	54	43	55	72	64	62	62	67	576	65	73
Soils & soil science[35]...	-	-	-	-	-	-	-	-	3	37	40	40	54
Animal sci & nutrition[36].	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology	68	71	76	69	71	92	85	83	91	107	842	101	106
Agriculture, general ...	2	1	4	2	7	4	3	1	4	17	43	4	2
Agriculture, other	11	11	19	30	26	32	33	61	66	50	346	88	150
Social sciences	505	572	615	671	1100	1251	1327	1582	1729	1931	12503	2317	2615
Anthropology	58	48	54	60	66	70	75	111	102	115	757	156	174
Archeology	5	3	5	7	5	7	4	7	10	7	66	4	12
Hist & phil of science[37].	-	-	-	-	-	-	-	-	-	-	-	-	28
Linguistics	14	41	37	76	47	59	68	66	55	40	570	103	134
Sociology	126	133	155	177	171	204	222	271	247	331	2093	412	471
Economics	317	364	337	400	492	516	575	627	657	645	5041	775	739
Econometrics	11	-	13	20	14	23	25	28	29	19	199	26	26
Agricultural economics[17].	-	-	-	-	-	-	-	-	-	92	92	116	168
Statistics[38].............	-	-	-	-	-	-	-	16	20	91	128	110	129
Geography	30	43	40	54	61	67	51	71	55	111	657	134	142
Pol sci, public admin[39].	179	208	223	214	260	306	304	385	617	610	2886	478	592
Political science[39]......	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	517	555	696	733	807	765	896	1030	1131	1150	9700	1466	1615
Clinical	160	277	270	250	246	259	290	334	355	397	2833	398	455
Counseling & guidance ..	46	53	57	34	39	40	45	58	94	85	548	66	110
Developmental & gerontol	10	11	11	10	10	14	25	26	28	45	194	49	56
Educational	45	55	41	22	37	27	30	41	51	54	394	66	72
School	-	11	7	11	11	16	5	20	18	27	134	32	51
Exper, compar, physiol[40].	171	143	61	3	2	6	1	2	-	-	398	-	-
Experimental[40]...........	-	3	121	165	189	160	228	237	245	271	1629	296	315
Comparative[40]............	-	0	16	13	4	9	5	15	15	11	88	19	16
Physiological[40]..........	-	1	31	44	33	73	65	73	75	40	442	95	88
Human engineering[41]......	5	-	-	4	5	0	3	-	-	-	17	-	-
Industrial & personnel .	[illegible]	27	35	40	48	36	67	55	44	55	418	69	54
Personality	4	14	21	22	30	21	29	27	29	26	223	40	52
Psychometrics	14	10	17	13	21	14	21	13	16	15	162	16	21
Social	40	55	58	76	66	76	74	90	99	136	769	123	129
Psychology, general	22	18	10	11	10	22	21	25	53	56	277	95	88
Psychology, other	1	5	-	-	-	7	7	16	20	56	120	61	88
Total, nonsci & engineering[42]	2479	3000	3364	3771	4200	4742	5314	6065	6854	7749	48120	9470	10266
Total, all fields	8849	9241	10249	11336	12764	14580	15967	17491	20004	22355	143104	25527	27271

See footnotes at end of table.

Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Male

Field of study	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Mathematical sciences	1185	1113	1096	1038	890	837	828	833	10110	846	822	1668	17822
Algebra	145	117	107	105	87	71	72	63	1121	63	40	103	2085
Analysis & funct anal ..	231	226	185	166	127	135	105	97	1743	83	97	180	3455
Geometry	33	28	35	22	20	24	21	20	267	33	28	61	529
Logic	33	30	17	34	31	13	21	20	262	22	17	39	472
Number theory	30	28	21	23	24	27	17	16	238	25	23	48	444
Probability & math stat.	139	139	136	159	143	138	137	134	1290	125	131	256	2396
Topology	123	99	102	88	66	63	52	52	890	50	44	94	1628
Topological algebra	-	-	-	-	-	-	-	-	-	-	-	-	116
Computing theory	151	209	189	156	132	88	46	21	1246	13	14	27	1523
Computer science	-	-	-	-	-	26	110	183	319	197	206	403	722
Operations research	-	3	24	51	35	37	38	39	227	36	31	67	294
Applied mathematics	116	112	132	95	103	104	96	99	1114	93	94	187	2106
Mathematics, general ...	101	88	109	99	82	77	77	68	883	71	72	143	1283
Mathematics, other	83	34	39	40	40	34	36	21	510	35	25	60	769
Life sciences	3781	3714	3524	3553	3508	3423	3411	3470	35907	3566	3562	7128	65046
Biological sciences	2957	2890	2745	2691	2770	2697	2623	2695	27936	2751	2714	5465	50023
Biochemistry	480	506	450	473	476	474	461	445	4788	485	455	940	8990
Biophysics	98	107	108	100	103	125	88	119	1036	90	89	179	1767
Biometry, biostatistics.	23	31	29	26	38	39	36	33	321	29	36	65	539
Anatomy	116	96	98	94	98	93	102	103	1026	102	108	210	1792
Cytology	18	20	26	31	32	25	24	28	272	31	33	64	505
Embryology	27	19	15	18	12	12	11	7	175	11	10	21	344
Immunology	12	38	52	50	63	68	65	86	434	84	89	173	607
Botany	164	160	149	122	143	126	102	103	1386	106	105	211	2788
Ecology	122	118	133	123	121	144	150	148	1272	133	145	278	2009
Hydrobiology	22	10	17	6	12	13	2	7	141	-	-	-	232
Microbiology & bacteriol	307	290	276	265	269	226	248	231	2771	248	250	498	5397
Animal & plant physiol .	-	-	-	-	-	-	-	-	-	-	-	-	275
Animal physiology	291	290	259	272	232	265	257	238	2709	272	247	519	4614
Plant physiology	68	72	66	56	48	32	38	44	591	43	57	100	1192
Nutrition	-	-	-	-	-	-	-	-	-	-	-	-	20
Zoology	312	264	217	208	215	204	183	190	2402	180	150	330	4663
Genetics	121	104	95	107	99	96	82	89	1034	102	95	197	2131
Entomology	186	168	162	162	137	135	134	151	1611	135	130	265	3041
Molecular biology	103	89	95	102	105	99	118	107	973	123	117	240	1285
Nutrition/dietetics	-	-	-	-	41	37	34	39	151	28	40	68	219
Parasitology	-	14	22	15	17	16	12	16	112	15	13	28	140
Pathology	79	73	73	59	71	83	61	65	667	80	79	159	1132
Pharmacology	165	133	143	140	180	155	170	185	1557	197	211	408	2825
Biological sci, general.	114	148	135	132	133	124	127	137	1263	147	147	294	1741
Biological sci, other ..	129	140	125	130	125	106	118	124	1244	110	108	218	1775
Agricultural sciences	824	824	779	862	738	726	788	775	7971	815	848	1663	15023
Agronomy	138	151	130	132	143	120	129	129	1454	141	162	303	3317
Animal husbandry	67	34	17	21	16	24	21	25	440	23	19	42	1686
Food sci & technology ..	73	82	82	94	70	82	92	85	759	78	76	154	951
Fish & wildlife	48	46	52	62	53	64	59	64	554	66	57	123	902
Forestry	74	72	74	84	79	63	85	82	779	74	89	163	1407
Horticulture	82	49	42	75	47	56	64	60	613	65	68	133	1322
Soils & soil science ...	83	100	89	97	67	71	92	68	761	73	83	156	957
Animal sci & nutrition .	66	109	127	121	111	97	93	104	825	106	132	238	1066
Phytopathology	88	94	86	95	78	71	83	69	871	104	78	182	1895
Agriculture, general ...	5	4	5	8	8	5	4	7	52	3	4	7	102
Agriculture, other	100	76	75	73	66	73	66	82	860	82	80	162	1418
Social sciences	2802	2849	2679	2687	2569	2468	2272	2130	25388	2047	2060	4107	41998
Anthropology	188	229	254	248	271	250	236	215	2223	196	217	413	3433
Archeology	9	11	11	14	10	15	16	23	125	12	15	27	218
Hist & phil of science .	36	20	24	21	22	24	18	22	215	11	21	32	247
Linguistics	112	142	98	124	82	117	110	78	1100	107	98	205	1875
Sociology	501	445	460	470	511	488	386	400	4544	371	361	732	7369
Economics	805	855	760	784	763	740	687	676	7584	642	707	1349	13974
Econometrics	32	31	18	25	29	27	21	21	256	20	16	36	490
Agricultural economics .	159	172	177	159	158	137	154	143	1541	148	155	303	1936
Statistics	80	59	35	37	30	30	32	19	564	24	32	56	745
Geography	165	198	182	177	139	128	127	106	1498	113	89	202	2357
Pol sci, public admin ..	715	687	660	627	32	-	-	-	3791	-	-	-	6655
Political science	-	-	-	1	522	512	485	427	1947	403	349	752	2699
Psychology	1671	1741	1797	1878	1937	1902	1923	1831	17746	1787	1885	3672	30118
Clinical	516	526	538	550	608	595	643	645	5474	621	701	1322	9629
Counseling & guidance ..	107	140	138	162	176	179	186	177	1461	159	191	350	2359
Developmental & gerontol	66	72	79	82	88	84	105	86	767	86	80	166	1127
Educational	82	80	83	90	79	76	90	90	808	76	103	179	1381
School	57	68	51	61	77	80	67	65	609	93	60	153	900
Exper, compar, physiol .	-	-	-	-	-	-	-	-	-	-	-	-	398
Experimental	280	248	270	263	269	239	214	211	2605	209	189	398	4632
Comparative	17	21	19	15	19	14	11	11	160	6	8	14	272
Physiological	95	89	81	93	95	100	90	75	913	84	68	152	1507
Human engineering	-	-	-	-	-	-	-	-	-	-	-	-	17
Industrial & personnel .	53	70	73	53	63	65	59	67	639	50	65	115	1172
Personality	29	34	44	47	31	34	28	19	338	25	23	48	611
Psychometrics	22	19	16	16	26	15	11	19	191	11	17	28	381
Social	137	160	143	167	148	133	128	126	1394	112	104	216	2408
Psychology, general	95	114	177	156	141	164	196	120	1355	117	148	265	1897
Psychology, other	115	100	85	123	117	121	102	120	1032	138	128	266	1427
Total, non-sci & engineering .	10851	11120	10888	10228	10379	9549	8817	8637	100143	8212	7845	16057	164320
Total, all fields	27757	27671	26594	25750	25262	23860	22552	22299	254543	21610	21447	43057	440704

See footnotes at end of table.

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Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Female

Field of study	Year of doctorate												
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, science & engineering	443	494	537	599	692	744	909	1086	1298	1483	8285	1626	1941
Physical sciences	57	63	74	93	98	126	120	155	175	136	1147	227	231
Physics and astronomy	9	7	14	11	14	27	22	37	34	39	214	45	56
Astronomy & astrophysics[1]	0	1	1	1	3	5	3	5	9	0	28	-	-
Astronomy[1]	-	-	-	-	-	-	-	-	-	2	2	3	5
Astrophysics[1]	-	-	-	-	-	-	-	-	-	5	5	5	3
Atomic & molecular	3	2	0	1	0	6	0	2	4	3	21	3	2
Electromagnatism[2]	0	0	0	0	0	1	1	1	0	0	3	0	0
Mechanics[3]	0	0	0	0	0	0	0	0	0	0	0	0	0
Acoustics	0	0	0	0	0	0	0	0	0	0	0	0	0
Fluids	0	2	1	1	0	1	0	2	0	1	8	1	1
Plasma[4]	-	-	-	-	-	-	-	0	0	0	0	0	1
Optics	0	0	0	0	0	0	0	0	0	2	2	0	0
Thermal[5]	1	0	0	0	0	1	1	0	0	1	4	1	0
Elementary particles	0	0	4	2	2	4	0	7	6	10	35	8	12
Nuclear physics[6]	0	0	-	-	-	-	-	-	-	-	-	-	-
Nuclear structure	2	1	2	2	1	2	5	5	2	3	25	6	8
Solid state	2	1	2	1	3	4	8	9	6	3	39	11	14
Theoretical physics[7]	0	0	3	0	-	-	-	-	-	-	3	-	-
Physics, general	1	0	0	2	3	1	1	3	3	5	19	4	4
Physics, other	0	0	1	1	2	2	3	3	4	4	20	3	6
Chemistry	48	56	60	82	84	99	98	118	141	147	933	182	175
Analytical	4	5	8	6	8	4	5	13	6	10	69	9	8
Inorganic	4	11	8	7	9	10	11	21	24	23	128	29	28
Organic	16	20	20	33	31	34	44	36	50	49	333	56	62
Nuclear chemistry	0	2	4	1	1	3	0	0	0	2	13	2	4
Physical	14	14	17	23	24	40	25	32	43	38	270	49	39
Theoretical chemistry	0	0	0	1	4	5	2	2	4	6	24	6	9
Agricultural and food[8]	1	1	1	5	2	1	3	5	1	4	24	12	7
Pharmaceutical	1	1	2	2	1	2	3	4	2	0	18	5	4
Polymer[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	6	1	0	3	2	0	4	2	4	9	31	9	11
Chemistry, other	2	1	0	1	2	0	1	3	7	6	23	5	3
Earth, env & marine sciences	3	2	5	4	5	1	12	6	11	20	69	16	14
Mineral, petrol, geochem[10]	0	0	2	4	3	1	4	1	4	1	20	-	-
Mineralogy, petrology[10]	-	-	-	-	-	-	-	-	0	6	6	4	0
Geochemistry[10]	-	-	-	-	-	-	-	-	0	3	3	1	3
Stratigraphy, sediment	1	0	1	0	0	0	2	0	0	0	4	0	4
Paleontology	1	2	2	0	0	0	2	0	2	0	9	2	2
Structural geology	0	0	0	0	0	0	0	1	1	2	4	0	1
Geophysics	0	0	0	0	0	0	1	0	0	0	1	1	1
Geophysics, solid earth.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Geomorph & glacial geol.	0	0	0	0	1	0	1	0	0	2	4	0	0
Hydrology & water res[12]	0	0	0	0	0	0	1	0	0	0	1	0	0
Oceanography	0	0	0	0	0	0	0	1	1	3	5	2	1
Marine science, other[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology[14]	0	0	0	0	1	0	1	1	1	0	4	3	0
Atmospheric phys & chem.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric sci, other[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]	1	0	0	0	0	0	0	0	0	0	1	-	-
Applied geology[15]	-	-	-	-	-	-	-	-	-	1	1	0	0
Fuel technology[15]	-	-	-	-	-	-	-	-	-	0	0	1	1
Earth science, general	-	-	0	0	0	0	0	1	2	2	5	1	0
Earth science, other	-	-	0	0	0	0	0	1	0	0	1	1	1
Engineering	3	4	4	10	10	7	8	9	12	10	77	15	15
Aeronaut & astronautical[16]	1	0	0	3	1	0	0	0	1	0	6	2	3
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0
Biomedical[17]	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical	0	0	1	3	2	0	2	3	3	3	17	2	3
Civil	1	0	0	2	1	2	0	1	0	0	7	1	1
Ceramic	0	0	1	0	0	1	0	0	1	0	3	0	0
Computer[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	1	1	0	1	3	1	2	0	0	2	11	1	3
Electronics	0	0	1	0	1	0	0	0	0	1	3	2	1
Industrial	0	0	0	0	0	0	0	2	1	1	4	0	2
Nuclear[19]	-	-	-	-	-	-	-	-	-	0	0	1	0
Engineering mechanics	0	1	0	0	1	1	1	1	2	0	7	1	0
Engineering physics[19]	0	0	0	1	0	0	0	0	1	0	2	1	0
Mechanical	0	0	0	0	0	1	0	1	0	0	2	1	0
Metallurgy[20]	0	0	1	0	0	1	2	1	1	1	7	1	1
Systems design[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[21]	-	-	-	-	-	-	-	-	-	-	-	-	0
Fuel technology[22]	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	0	1	0	0	0	0	0	0	0	1	2	0	0
Materials science[17]	-	-	-	-	-	-	-	-	-	0	0	0	0
Engineering, general	0	0	0	0	0	0	0	0	1	0	1	0	0
Engineering, other	0	1	0	0	1	0	1	0	1	1	5	2	1

See footnotes at end of table.

Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Female

Field of study	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
	Year of doctorate												
Total, science & engineering .	2103	2450	2607	2836	2981	3107	3313	3583	26547	3801	4021	7822	42654
Physical sciences	249	235	234	264	244	244	247	292	2467	322	308	630	4244
Physics and astronomy	46	36	57	70	55	64	52	73	574	67	73	140	928
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	28
Astronomy	4	4	5	8	7	7	4	6	53	7	7	14	69
Astrophysics	4	2	1	4	4	2	3	2	30	6	4	10	45
Atomic & molecular	3	3	4	5	2	6	2	6	36	0	8	8	65
Electromagnetism	0	0	0	2	0	0	0	0	2	-	-	-	5
Mechanics	0	1	1	0	0	-	-	-	2	-	-	-	2
Acoustics	0	1	0	1	0	0	0	1	3	2	2	4	7
Fluids	0	0	1	1	1	0	1	1	7	0	3	3	18
Plasma	1	4	0	0	1	2	7	2	18	2	2	4	22
Optics	0	0	1	1	2	1	0	1	6	2	1	3	11
Thermal	1	3	0	0	0	0	0	0	5	0	0	0	9
Elementary particles ...	6	4	11	6	6	9	3	7	72	5	8	13	120
Nuclear physics	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear structure	4	7	1	3	8	4	4	4	49	6	3	9	83
Solid state	10	12	19	18	13	12	17	17	143	14	20	34	216
Theoretical physics	-	-	-	-	-	-	-	-	-	-	-	-	3
Physics, general	6	8	9	15	7	10	8	17	88	9	10	19	126
Physics, other	7	7	4	6	4	11	3	9	60	14	5	19	99
Chemistry	203	179	177	194	189	180	195	219	1893	255	235	490	3316
Analytical	16	8	7	12	10	13	17	27	127	23	30	53	249
Inorganic	31	33	27	34	26	29	27	35	298	32	35	67	493
Organic	49	46	48	44	42	48	55	54	504	74	60	134	971
Nuclear chemistry	2	1	2	1	1	6	2	1	22	1	0	1	36
Physical	54	53	45	52	55	41	42	53	483	56	51	107	860
Theoretical chemistry ..	10	5	7	9	6	5	7	3	67	7	6	13	104
Agricultural and food ..	6	1	2	0	3	0	2	2	35	-	-	-	59
Pharmaceutical	8	6	6	9	9	5	5	6	63	15	5	20	101
Polymer	-	0	2	3	2	2	4	5	18	5	4	9	27
Chemistry, general	12	16	22	17	24	23	25	24	183	27	26	53	267
Chemistry, other	15	10	9	13	11	8	9	9	93	15	18	33	149
Earth, env & marine sciences	22	27	35	30	63	59	61	58	385	64	56	120	574
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	20
Mineralogy, petrology ..	5	2	1	2	1	7	5	3	30	4	5	9	45
Geochemistry	3	0	4	3	3	7	5	10	39	6	5	11	53
Stratigraphy, sediment .	2	4	0	1	6	2	4	3	26	5	7	12	42
Paleontology	1	6	3	5	7	3	6	9	44	5	1	6	59
Structural geology	1	1	0	1	1	1	4	2	12	1	1	2	18
Geophysics	3	1	4	2	2	-	-	-	14	-	-	-	15
Geophysics, solid earth.	-	-	-	-	2	7	6	5	20	2	5	7	27
Geomorph & glacial geol.	0	0	2	0	3	0	1	2	8	2	2	4	16
Hydrology & water res ..	0	0	1	0	0	0	0	0	1	3	1	4	6
Oceanography	1	4	8	3	14	5	8	9	55	10	7	17	77
Marine science, other ..	-	-	-	-	-	1	6	1	8	5	2	7	15
Meteorology	2	1	2	2	1	-	-	-	11	-	-	-	15
Atmospheric phys & chem.	-	-	-	-	3	0	0	1	4	1	1	2	6
Atmospheric dynamics ...	-	-	-	-	0	3	1	1	5	3	1	4	9
Atmospheric sci, other .	-	-	-	-	4	6	2	1	13	4	1	5	18
Environ science, general	0	5	5	6	6	1	2	2	27	0	3	3	30
Environ science, other .	1	0	1	2	4	6	5	5	24	6	8	14	38
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	1
Applied geology	0	0	0	0	1	2	1	1	5	0	0	0	6
Fuel technology	0	0	1	0	1	0	0	0	4	-	-	-	4
Earth science, general .	1	2	1	0	3	4	4	1	17	4	4	8	30
Earth science, other ...	2	1	2	3	1	4	1	2	18	3	2	5	24
Engineering	22	46	33	52	54	74	53	62	426	90	99	189	692
Aeronaut & astronautical	0	2	3	2	0	3	1	0	16	1	0	1	23
Agricultural	0	1	0	1	0	0	0	0	2	1	2	3	5
Biomedical	3	1	1	5	2	0	0	1	13	3	3	6	19
Chemical	2	4	8	4	7	9	5	8	52	14	11	25	94
Civil	1	6	3	3	4	7	6	2	34	6	6	12	53
Ceramic	1	1	2	0	0	3	0	1	8	2	1	3	14
Computer	-	-	-	7	8	9	5	3	32	5	8	13	45
Electrical	4	6	3	9	7	9	11	7	60	11	14	25	96
Electronics	1	1	0	0	0	3	1	1	10	1	0	1	14
Industrial	0	2	1	2	2	5	2	5	21	7	6	13	38
Nuclear	1	1	1	3	2	2	4	3	18	1	6	7	25
Engineering mechanics ..	0	4	2	2	1	3	1	1	15	3	1	4	26
Engineering physics	1	1	1	0	0	0	0	1	5	0	2	2	9
Mechanical	2	3	5	2	3	3	2	4	25	4	5	9	36
Metallurgy	2	3	1	0	2	1	2	0	13	7	5	12	32
Systems design	-	-	-	0	1	0	1	5	7	3	4	7	14
Operations research	1	3	1	0	3	4	2	6	20	5	7	12	32
Fuel technology	-	0	0	1	0	1	0	1	3	0	0	0	3
Sanitary & environmental	1	3	0	2	2	1	2	2	13	5	4	9	24
Materials science	0	3	0	5	6	6	3	7	30	5	11	16	46
Engineering, general ...	0	0	0	0	0	2	1	1	4	5	1	6	11
Engineering, other	2	1	1	4	4	3	4	3	25	1	2	3	33

See footnotes at end of table.

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Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Female

Field of study	Year of doctorate												
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Mathematical sciences	15	17	22	28	33	50	47	48	47	56	363	77	96
Algebra	0	1	6	9	8	11	10	12	17	14	88	18	19
Analysis & funct anal[26]..	4	6	5	6	9	8	12	14	9	11	84	12	22
Geometry	0	0	0	1	2	2	2	1	3	3	14	5	6
Logic	1	0	0	0	2	4	0	2	0	3	12	2	3
Number theory	2	1	3	1	1	4	3	2	3	3	23	3	5
Probability & math stat[27]	4	5	3	7	5	5	6	7	2	0	44	9	8
Topology	1	0	2	1	3	4	3	5	4	5	28	10	9
Topological algebra[28]...	0	1	0	0	0	1	0	0	-	-	2	-	-
Computing theory	1	0	0	0	0	1	1	0	0	2	5	2	3
Computer science[13].......	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[29]...	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	0	1	2	2	1	5	5	2	4	4	26	9	3
Mathematics, general ...	0	1	1	1	0	1	4	1	4	6	19	6	15
Mathematics, other	2	1	0	0	2	4	1	2	1	5	18	1	3
Life sciences	150	161	188	199	227	263	325	401	483	538	2935	538	660
Biological sciences	143	158	181	194	219	251	317	389	476	526	2854	515	631
Biochemistry	37	35	44	49	65	64	86	104	125	105	714	97	121
Biophysics	3	4	4	1	2	2	4	12	6	12	50	10	10
Biometry, biostatistics.	2	1	1	1	3	2	3	8	2	1	24	8	7
Anatomy	5	11	9	8	7	11	14	15	21	22	123	26	26
Cytology[30]...............	-	-	8	2	6	8	13	11	9	18	75	17	26
Embryology	1	0	1	6	4	7	12	16	10	12	69	13	11
Immunology[31]............	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	12	16	8	12	27	15	20	29	24	30	193	31	31
Ecology	2	1	1	2	0	2	1	1	4	4	18	6	11
Hydrobiology[8]...........	0	0	0	1	0	3	0	0	0	0	4	0	3
Microbiology & bacteriol[32]	25	27	33	38	24	51	47	56	81	91	473	74	74
Animal & plant physiol[33].	7	19	6	-	-	-	-	-	-	-	32	-	-
Animal physiology[33]......	0	1	11	19	23	33	30	37	43	45	242	42	58
Plant physiology[33]......	0	0	3	4	7	4	5	8	10	12	53	8	11
Nutrition[34].............	6	0	0	1	-	-	-	-	-	-	7	-	-
Zoology	27	17	27	19	27	27	40	28	58	41	311	31	56
Genetics	9	9	12	16	10	12	17	28	22	25	160	34	28
Entomology	1	5	2	2	2	2	9	9	10	16	58	8	12
Molecular biology[17]......	-	-	-	-	-	0	0	0	0	19	19	25	24
Nutrition/dietetics[11]....	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]...........	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	0	1	1	2	1	1	1	2	5	4	18	0	6
Pharmacology	2	3	6	8	7	7	11	12	23	19	98	17	22
Biological sci, general.	2	3	1	0	1	0	1	7	11	20	46	25	47
Biological sci, other ..	2	5	3	3	3	0	3	6	12	30	67	43	47
Agricultural sciences	7	3	7	5	8	12	8	12	7	12	81	23	29
Agronomy	2	0	1	0	0	0	2	1	0	0	6	2	5
Animal husbandry[17].......	2	2	0	1	4	5	0	3	1	2	20	1	2
Food sci & technology ..	-	-	-	-	-	-	-	-	-	1	1	4	11
Fish & wildlife	0	0	0	0	0	0	1	0	0	0	1	2	0
Forestry	0	0	0	0	0	0	0	1	0	0	1	0	0
Horticulture	1	0	1	1	2	3	2	0	1	2	13	4	2
Soils & soil science[35]..	-	-	-	-	-	-	-	-	-	-	-	1	3
Animal sci & nutrition[36].	-	-	-	-	-	-	-	-	-	1	1	0	0
Phytopathology	2	1	5	3	1	4	3	4	2	4	29	5	3
Agriculture, general ...	0	0	0	0	0	0	0	1	0	0	1	0	0
Agriculture, other	0	0	0	0	1	0	0	2	3	2	8	4	3
Social sciences	80	82	86	108	113	108	152	202	237	257	1425	309	395
Anthropology	11	7	12	22	14	12	22	36	36	46	218	59	65
Archeology	3	2	1	2	4	3	3	5	7	4	34	4	6
Hist & phil of science[37].	-	-	-	-	-	-	-	-	-	-	-	-	7
Linguistics	6	5	9	9	17	13	31	24	28	26	168	34	41
Sociology	28	34	29	34	30	35	40	60	73	82	445	93	116
Economics	14	16	16	23	20	21	25	34	34	42	245	51	54
Econometrics	0	0	0	1	1	0	2	2	1	2	9	1	1
Agricultural economics[17].	-	-	-	-	-	-	-	-	-	0	0	0	2
Statistics[38]............	-	-	-	-	-	-	-	2	1	6	9	8	4
Geography	4	5	4	4	3	4	4	4	2	4	38	3	16
Pol sci, public admin[39].	14	13	15	13	24	20	25	35	55	45	259	56	83
Political science[39]......	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	135	165	158	157	206	189	245	265	333	416	2269	444	530
Clinical	51	62	61	53	101	76	93	86	130	128	841	151	167
Counseling & guidance ..	12	12	10	9	8	7	11	20	19	23	131	27	36
Developmental & gerontol	10	9	15	10	7	14	18	21	34	27	165	35	58
Educational	12	19	14	12	10	11	17	18	22	21	156	22	24
School	1	4	2	4	5	2	5	11	7	6	47	13	19
Exper, compar, physiol[40].	21	28	9	0	1	0	0	0	0	0	59	0	0
Experimental[40]...........	-	1	9	31	33	25	40	46	50	52	287	70	81
Comparative[40]............	-	0	1	1	3	2	1	1	2	6	17	3	1
Physiological[40].........	-	0	4	6	2	5	9	12	18	19	75	20	31
Industrial & personnel .	2	0	0	1	2	3	1	3	2	4	18	6	4
Personality	2	4	6	7	6	7	7	5	3	13	60	10	14
Psychometrics	1	2	2	2	1	3	6	2	3	4	26	2	5
Social	18	13	22	16	22	24	27	18	24	47	231	34	43
Psychology, general	5	10	3	3	3	9	7	17	17	44	118	27	28
Psychology, other	0	1	0	2	2	1	3	5	2	22	38	24	19
Total, non-sci & engineering[42].	599	634	698	794	869	1016	1177	1356	1634	1905	10682	2345	2655
Total, all fields	1042	1128	1235	1393	1561	1760	2086	2442	2932	3388	18967	3971	4596

See footnotes at end of table.

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Table 1. New science and engineering doctorates by subfield and sex: 1960-81 - Con.

Female

Field of study	Year of doctorate											
	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Mathematical sciences	96	120	115	109	113	127	131	146	1130	116	138	254	747
Algebra	22	25	18	21	29	17	15	25	209	15	14	29	326
Analysis & funct anal ..	10	18	23	14	14	18	13	14	158	8	8	16	258
Geometry	2	4	3	4	3	2	1	5	35	2	1	3	52
Logic	6	3	2	4	3	4	3	1	31	2	1	3	46
Number theory	6	3	2	4	2	5	1	1	32	3	1	4	59
Probability & math stat.	12	18	12	15	22	21	31	31	179	26	32	58	281
Topology	7	12	15	6	6	7	4	9	85	7	11	18	131
Topological algebra	-	-	-	-	-	-	-	-	-	-	-	-	2
Computing theory	12	16	14	10	16	13	9	4	99	0	2	2	106
Computer science	-	1	-	-	-	5	11	27	44	21	26	47	91
Operations research	-	0	0	4	1	5	5	4	19	5	4	9	28
Applied mathematics	3	7	4	6	2	9	12	12	67	9	24	33	126
Mathematics, general ...	11	6	13	15	12	11	15	12	116	12	8	20	155
Mathematics, other	5	7	9	6	3	10	11	1	56	6	6	12	86
Life sciences	673	789	780	849	853	843	958	1031	7974	1150	1221	2371	13280
Biological sciences	643	758	739	806	803	787	893	951	7526	1053	1087	2140	12520
Biochemistry	105	129	149	147	141	135	146	158	1328	188	189	377	2419
Biophysics	16	8	14	12	20	16	22	14	142	18	10	28	220
Biometry, biostatistics.	7	4	7	11	8	13	9	11	85	13	12	25	134
Anatomy	43	31	24	25	35	23	42	48	323	45	48	93	539
Cytology	18	19	14	10	14	12	9	11	150	13	14	27	252
Embryology	8	10	7	9	1	7	4	7	77	7	10	17	163
Immunology	6	12	17	21	30	33	29	48	196	41	60	101	297
Botany	31	50	28	33	39	32	46	38	359	38	42	80	632
Ecology	12	16	16	19	19	19	20	25	163	36	52	88	269
Hydrobiology	2	1	0	2	1	1	1	3	14	-	-	-	18
Microbiology & bacteriol	90	92	106	98	93	86	101	118	932	118	103	221	626
Animal & plant physiol .	-	-	-	-	-	-	-	-	-	-	-	-	32
Animal physiology	52	67	54	60	53	56	58	76	576	68	80	148	966
Plant physiology	7	20	11	11	14	11	5	13	111	9	11	20	184
Nutrition	-	-	-	-	-	-	-	-	-	-	-	-	7
Zoology	44	67	43	63	43	50	48	59	504	46	47	93	908
Genetics	39	24	31	49	44	45	44	52	390	55	62	117	667
Entomology	9	16	13	8	8	18	12	11	115	26	13	39	212
Molecular biology	52	30	45	54	43	32	54	33	392	60	68	128	539
Nutrition/dietetics	-	-	-	-	44	45	56	68	213	62	59	121	334
Parasitology	-	5	4	3	2	1	1	5	21	7	5	12	33
Pathology	10	6	8	8	23	16	29	20	126	28	27	55	199
Pharmacology	23	27	33	26	25	41	46	35	295	60	69	129	522
Biological sci, general.	23	46	56	53	57	54	64	50	475	62	60	122	643
Biological sci, other ..	46	78	59	84	46	41	47	48	539	53	46	99	705
Agricultural sciences	30	31	41	43	50	56	65	80	448	97	134	231	760
Agronomy	4	2	2	2	3	3	8	9	40	10	15	25	71
Animal husbandry	1	1	0	0	1	1	0	1	8	2	0	2	30
Food sci & technology ..	8	10	19	17	21	25	25	22	162	24	28	52	215
Fish & wildlife	1	2	2	1	2	2	2	2	16	7	9	16	33
Forestry	0	0	0	2	0	3	3	5	13	6	6	12	26
Horticulture	3	1	2	2	4	4	1	9	32	8	17	25	70
Soils & soil science ...	2	2	1	0	2	1	5	3	20	6	7	13	33
Animal sci & nutrition .	2	4	9	9	8	4	8	8	52	13	17	30	83
Phytopathology	5	8	5	5	5	11	6	19	72	14	21	35	136
Agriculture, general ...	0	0	0	0	1	1	2	0	4	0	1	1	6
Agriculture, other	4	1	1	5	3	1	5	2	29	7	13	20	57
Social sciences	432	516	609	659	708	672	736	734	5770	748	727	1475	8670
Anthropology	72	97	125	138	157	136	163	168	1180	174	152	326	1724
Archaology	9	10	9	9	12	8	16	12	95	14	13	27	156
Hist & phil of science .	3	10	9	6	14	5	7	6	67	10	5	15	82
Linguistics	48	66	70	70	70	73	65	78	615	75	78	153	936
Sociology	138	154	185	210	223	237	224	232	1812	231	242	473	2730
Economics	57	57	74	84	92	71	91	104	735	102	100	202	1182
Econometrics	1	0	1	2	1	2	2	1	12	2	1	3	24
Agricultural economics .	3	6	5	3	4	6	5	11	45	12	13	25	70
Statistics	5	6	2	6	5	5	14	4	59	9	7	16	84
Geography	12	17	13	10	16	27	31	23	168	17	20	37	243
Pol sci, public admin ..	84	93	115	121	8	-	-	-	560	-	-	-	819
Political science	-	-	1	0	106	102	118	95	422	102	96	198	620
Psychology	609	717	801	873	946	1088	1127	1260	8395	1311	1472	2783	13447
Clinical	163	220	233	260	275	341	418	424	2652	485	555	1040	4533
Counseling & guidance ..	44	60	63	69	91	90	92	138	710	140	160	300	1141
Developmental & gerontol	69	77	83	99	102	119	103	135	880	121	120	241	1286
Educational	45	35	39	44	45	60	55	73	442	61	77	138	736
School	32	41	38	42	66	68	58	60	437	83	73	156	640
Exper, compar, physiol .	-	-	-	-	-	-	-	-	-	-	-	-	59
Experimental	73	85	84	88	88	98	85	82	834	98	93	191	1312
Comparative	4	3	4	7	9	8	9	10	58	2	3	5	80
Physiological	26	33	37	31	38	32	36	27	311	24	34	58	444
Human engineering	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial & personnel .	2	6	7	10	10	13	15	20	93	16	22	38	149
Personality	22	17	16	15	31	29	13	23	190	18	26	44	294
Psychometrics	3	5	8	1	1	4	4	6	39	10	10	20	85
Social	46	54	59	66	61	69	76	90	598	78	76	154	983
Psychology, general	38	41	73	88	77	99	105	87	663	93	135	228	1009
Psychology, other	42	40	57	53	52	58	58	85	488	82	88	170	696
Total, non-sci & engineering .	3184	3635	3846	4365	4703	4751	5008	5353	39845	5605	5851	11456	61983
Total, all fields	5287	6085	6453	7201	7684	7858	8321	8936	66392	9406	9872	19278	104637

See footnotes at end of table.

SOURCES: National Science Foundation and National Research Council

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1/ "Astronomy/astrophysics" was included in the field taxonomy until 1969 when separate entries were introduced. The dash (-) signifies that data are not available for a given time period. For example, data for "astronomy/astrophysics" are not available after 1969, while data for "astronomy" or "astrophysics" are not available prior to 1969. A zero (0) signifies that no doctorates were produced.

2/ This subfield was originally called "Electricity and Magnetism." In 1966 the name was changed to "Electromagnetism." In 1980 this subfield was deleted from the taxonomy.

3/ "Thermal physics" was originally shown as one subfield, "Mechanics and Heat." In 1960 this subfield was separated into "Mechanics" and "Heat (Thermal)." The latter was subsequently changed to "Thermal Phenomena" in 1963 and then to "Thermal Physics" in 1967. "Mechanics" was deleted from the taxonomy in 1977.

4/ "Plasma physics" was not added until 1969.

5/ This subfield was added in 1960 under the original name of "Heat (Thermal)." See footnote 3 for more information.

6/ This subfield was deleted in 1962.

7/ This subfield was deleted in 1962, but some entries appear for 1962 and 1963 due to use of outdated forms by some institutions.

8/ This subfield was deleted in 1980.

9/ This subfield was introduced in 1973.

10/ This subfield was originally specified as "Geochemistry." In 1963 the field was expanded to include "Mineralogy" and "Petrology."

11/ This subfield was introduced in 1976.

12/ This subfield was originally listed as "Hydrology." "Water Resources" was added to the title in 1977.

13/ This subfield was introduced in 1977.

14/ This subfield was deleted in 1976.

15/ In 1960 "Geophysical Engineering" and "Geological Engineering" were merged into "Geo-engineering." "Geo-engineering" became "Applied Geology, Geological engineering, Economic Geology, and Petroleum Engineering in 1962 and was split into "Applied Geology, Geological Engineering and Economic Geology" and "Fuel Technology and Petroleum Engineering" in 1969.

16/ This subfield was originally named "Aeronautical Engineering." In 1966 the term "Astronautical" was added.

17/ Thia subfield was introduced in 1969.

18/ This subfield was introduced in 1975.

19/ In 1961 "Nuclear Engineering" was deleted from the taxonomy, and previous cases were added to "Engineering Physics." In 1969 "Nuclear Engineering" was reinstated in the taxonomy.

20/ This subfield was originally specified as "Metallurgy and Metallurgical Engineering." The term "Physical" was introduced in 1967.

21/ This subfield was introduced in 1972.

22/ This subfield's full title is "Fuel Technology and Petroleum Engineering." It was added to the Engineering section of the taxonomy in 1972. (See also footnote 15.)

23/ This subfield was originally called "Sanitary Engineering." The term "Environmental" was added in 1977.

24/ This subfield was deleted from the taxonomy in 1969.

25/ "Mining Engineering" was originally deleted in 1961 but was restored to the taxonomy in 1969.

26/ This subfield was specified as "Analysis" through 1967. "Functional Analysis" was added in 1968.

27/ "Math Statistics" was deleted from the taxonomy in 1969 but was restored in 1972.

28/ This subfield was deleted in 1967.

29/ This subfield was introduced in 1973.

30/ This subfield was introduced in 1962.

31/ This subfield was introduced in 1972.

32/ This subfield was originally called "Microbiology." "Bacteriology" was added in 1970.

33/ In 1962 "Animal and Plant Physiology" was separated into "Animal Physiology" and "Plant Physiology."

34/ This subfield was deleted in 1960.

35/ This subfield was added in 1969 under the name of "Range Management." In 1972 the title was changed to "Soils and Soils Science." Previous cases under "Range Management" were converted to "Agriculture, Other."

36/ This subfield was introduced as "Animal Sciences" in 1973. The title was changed to "Animal Science and Animal Nutrition" in 1977.

37/ This subfield was introduced in 1971.

38/ This subfield was introduced in 1967.

39/ "Political Science, Public Administration" was split into two separate subfields in 1976.

40/ "Experimental, Comparative and Physiological Psychology" was split into three separate subfields in 1962.

41/ This subfield was deleted from the published taxonomy in 1962 but "write-in" responses were coded until 1969. Beginning in 1969, write-responses were included with "Psychology, Other."

42/ Non-science/engineering doctorates in this table include doctorates whose field of specialization is unknown.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81

U.S. Citizenship

	Year of doctorate											
Field of study	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, science & engineering	5261	5584	6133	6795	7494	8460	9115	10384	11632	12908	83766	14326	15123
Physical sciences	1413	1482	1578	1786	1862	2092	2173	2524	2717	2841	20468	3211	3209
Physics and astronomy	459	501	580	679	716	857	851	1046	1186	1191	8066	1337	1372
Astronomy & astrophysics[1]	8	15	26	31	36	55	51	53	82	9	366	-	-
Astronomy[1]	-	-	-	-	-	-	-	-	-	32	32	40	50
Astrophysics[1]	-	-	-	-	-	-	-	-	-	60	60	50	50
Atomic & molecular	43	61	71	84	102	101	99	112	116	114	903	133	107
Electromagnetism[2]	5	18	18	18	30	28	29	22	10	11	189	15	14
Mechanics[3]	1	3	4	6	4	7	3	10	4	8	50	5	6
Acoustics	11	7	5	12	7	6	8	8	9	10	83	23	14
Fluids	4	16	26	19	12	28	27	36	31	20	219	15	15
Plasma[4]	-	-	-	-	-	-	-	1	0	52	53	66	68
Optics	6	6	6	4	8	10	8	12	9	18	87	27	20
Thermal[5]	2	1	4	11	7	21	16	17	12	15	106	15	14
Elementary particles	49	56	90	117	126	145	127	168	188	186	1252	196	216
Nuclear[6]	1	1	-	-	-	-	-	-	-	-	2	-	-
Nuclear structure	97	93	117	120	126	124	128	160	170	166	1301	176	186
Solid state	123	107	140	157	184	243	257	307	334	310	2162	349	365
Theoretical[7]	71	93	43	3	-	-	-	-	-	-	210	-	-
Physics, general	4	3	13	33	24	21	16	39	95	100	348	98	100
Physics, other	34	21	17	64	50	68	82	101	126	80	643	129	147
Chemistry	954	981	998	1107	1146	1235	1322	1478	1531	1650	12402	1874	1837
Analytical	57	63	81	77	98	81	112	129	118	134	950	141	159
Inorganic	85	87	91	113	138	136	146	182	210	236	1424	277	273
Organic	431	451	425	468	460	540	575	621	657	685	5313	745	700
Nuclear chemistry	11	27	19	32	22	22	23	20	22	21	219	28	29
Physical	285	260	302	313	329	366	362	400	385	395	3397	461	419
Theoretical chemistry	11	16	18	22	17	22	23	33	41	35	238	55	48
Agricultural and food[8]	17	25	16	26	29	22	25	29	29	32	250	33	35
Pharmaceutical	24	30	32	35	32	30	34	42	32	29	320	35	45
Polymer[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	22	4	7	8	8	3	5	2	13	43	115	48	59
Chemistry, other	11	18	7	13	13	13	17	20	24	40	176	51	70
Earth, env & marine sciences	206	209	221	254	252	305	334	333	350	388	2852	400	467
Mineral, petrol, geochem[10]	54	66	58	75	58	78	88	65	62	8	612	-	-
Mineralogy, petrology[10]	-	-	-	-	-	-	-	-	-	40	40	45	40
Geochemistry[10]	-	-	-	-	-	-	-	-	-	27	27	31	42
Stratigraphy, sediment	67	52	37	53	54	49	54	53	45	37	501	44	61
Paleontology	20	14	27	32	24	35	37	37	43	32	301	39	29
Structural geology	5	7	17	16	13	17	24	33	18	25	175	10	27
Geophysics	17	27	17	17	20	19	22	20	25	51	235	42	51
Geophysics, solid earth.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Geomorph & glacial geol.	8	6	11	8	8	18	8	9	15	12	103	15	22
Hydrology & water res[12]	1	3	2	1	3	3	3	9	8	11	44	15	21
Oceanography	5	7	14	12	15	25	33	44	42	35	232	62	47
Marine science, other[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology[14]	17	13	15	11	24	28	30	36	36	35	245	43	51
Atmospheric phys & chem.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric sci, other[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]	12	14	19	17	23	21	17	16	24	1	164	-	-
Applied geology[15]	-	-	-	-	-	-	-	-	-	17	17	13	26
Fuel technology	-	-	-	-	-	-	-	2	3	4	9	4	8
Earth science, general	-	-	4	4	4	5	9	4	15	28	73	20	22
Earth science, other	-	-	0	8	6	7	9	5	14	25	74	17	20
Engineering	607	725	930	1042	1288	1576	1690	1926	2105	2387	14276	2514	2418
Aeronaut & astronautical[16]	18	27	43	50	51	61	77	113	129	146	715	158	145
Agricultural	18	14	9	15	20	24	35	24	23	31	213	40	42
Biomedical[17]	-	-	-	-	-	-	-	-	-	34	34	38	59
Chemical	138	156	187	198	224	298	294	257	282	303	2337	310	266
Civil	39	55	68	70	123	117	129	159	180	166	1106	166	184
Ceramic	13	15	18	16	20	28	33	44	36	39	262	41	39
Computer[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	123	164	180	223	274	310	335	393	475	541	3018	547	550
Electronics	31	27	52	77	78	81	69	109	101	99	724	120	87
Industrial	13	17	16	18	27	45	40	42	54	93	365	79	109
Nuclear[19]	-	-	-	-	-	-	-	-	-	83	83	85	102
Engineering mechanics	29	54	73	67	104	121	132	157	160	171	1068	169	131
Engineering physics[19]	18	23	34	49	62	74	105	103	95	43	606	35	28
Mechanical	71	81	122	117	149	197	213	240	283	309	1782	316	296
Metallurgy[20]	73	58	89	97	81	140	124	167	140	150	1119	168	137
Systems design	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[21]	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel technology[22]	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	9	18	18	19	26	26	43	31	47	44	281	43	39
Mining[25]	-	-	-	-	-	-	-	-	-	5	5	4	4
Materials science[17]	-	-	-	-	-	-	-	-	-	19	19	29	31
Engineering, general	1	2	1	4	6	5	3	17	17	21	77	23	21
Engineering, other	13	14	20	22	43	49	58	70	83	90	462	143	148

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81

U.S. Citizenship

	Year of doctorate												
Field of study	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, science & engineering .	14908	14683	13458	14015	13773	13408	13086	13257	140037	13177	13272	26449	250252
Physical sciences	2889	2644	2339	2317	2175	2071	1978	2040	24873	1884	1948	3832	49173
Physics and astronomy	1278	1188	956	925	911	833	804	800	10404	715	715	1430	19900
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	366
Astronomy	54	52	51	50	67	59	62	48	533	45	43	88	653
Astrophysics	58	58	67	55	61	47	61	49	556	59	53	112	728
Atomic & molecular	130	99	99	101	94	86	68	64	981	57	51	108	1992
Electromagnetism	10	10	6	8	8	7	9	4	91	-	-	-	280
Mechanics	5	4	2	2	3	-	-	-	27	-	-	-	77
Acoustics	17	13	12	11	9	9	13	11	132	19	10	29	244
Fluids	24	20	13	16	16	11	9	12	151	10	8	18	388
Plasma	69	57	44	38	60	54	55	44	555	47	54	101	709
Optics	28	26	18	22	42	26	24	34	267	28	37	65	419
Thermal	12	10	10	8	3	3	7	6	88	5	3	8	202
Elementary particles ...	145	159	104	96	94	100	106	92	1308	84	90	174	2734
Nuclear	-	-	-	-	-	-	-	-	-	-	-	-	2
Nuclear structure	195	135	108	93	69	70	57	78	1167	53	45	98	2566
Solid state	305	311	243	224	203	179	177	170	2526	144	180	324	5012
Theoretical	-	-	-	-	-	-	-	-	-	-	-	-	210
Physics, general	86	120	81	98	90	98	85	105	961	88	68	156	1465
Physics, other	140	114	98	103	92	84	71	83	1061	76	73	149	1853
Chemistry	1611	1456	1383	1392	1264	1238	1174	1240	14469	1169	1233	2402	29273
Analytical	133	115	127	123	133	157	156	177	1421	156	201	357	2728
Inorganic	249	238	177	206	196	169	171	174	2130	160	162	322	3876
Organic	614	531	533	483	395	397	365	378	5141	364	394	758	11212
Nuclear chemistry	17	21	24	20	19	20	11	11	200	12	11	23	442
Physical	380	351	296	313	282	267	238	268	3275	229	226	455	7127
Theoretical chemistry ..	59	41	41	35	42	28	38	41	428	40	26	66	732
Agricultural and food ..	10	3	10	3	9	5	3	9	120	-	-	-	370
Pharmaceutical	27	36	48	47	34	32	28	29	361	30	39	69	750
Polymer	-	8	15	28	26	37	34	41	189	31	27	58	247
Chemistry, general	57	63	76	87	81	81	79	70	701	90	92	182	998
Chemistry, other	65	49	36	47	47	45	51	42	503	57	55	112	791
Earth, env & marine sciences	473	505	457	492	508	559	518	532	4911	512	471	983	8746
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	612
Mineralogy, petrology ..	46	36	29	30	45	54	34	31	390	45	27	72	502
Geochemistry	27	32	37	37	39	47	46	49	387	44	45	89	503
Stratigraphy, sediment .	46	46	42	41	47	32	27	27	413	38	37	75	989
Paleontology	27	42	37	38	39	26	29	34	340	20	19	39	680
Structural geology	19	18	12	15	21	19	26	22	189	19	27	46	410
Geophysics	56	49	55	60	18	-	-	-	331	-	-	-	566
Geophysics, solid earth.	-	-	-	-	29	55	46	65	195	46	53	99	294
Geomorph & glacial geol.	18	26	19	25	28	21	22	14	210	12	12	24	337
Hydrology & water res ..	9	20	9	16	11	15	19	16	151	21	12	33	228
Oceanography	71	75	67	73	73	95	84	77	724	74	62	136	1092
Marine science, other ..	-	-	-	-	-	9	28	29	66	24	27	51	117
Meteorology	63	45	42	30	14	-	-	-	288	-	-	-	533
Atmospheric phys & chem.	-	-	-	-	13	14	17	14	58	16	14	30	88
Atmospheric dynamics ...	-	-	-	-	11	25	18	16	70	12	22	34	104
Atmospheric sci, other .	-	-	-	-	13	32	25	29	99	34	19	53	152
Environ science, general	1	38	42	54	29	21	14	19	218	12	26	38	256
Environ science, other .	13	12	4	11	24	25	24	25	138	22	17	39	177
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	164
Applied geology	31	17	17	14	16	17	13	16	180	22	15	37	234
Fuel technology	4	3	2	1	1	1	0	1	25	0	0	0	34
Earth science, general .	23	27	26	23	19	33	32	30	255	36	26	62	390
Earth science, other ...	19	19	17	24	18	18	14	18	184	15	11	26	284
Engineering	2330	2142	1752	1716	1557	1472	1261	1293	18455	1255	1169	2424	35155
Aeronaut & astronautical	125	113	131	96	84	58	48	30	958	33	50	83	1756
Agricultural	45	51	21	34	21	16	21	23	314	27	18	45	572
Biomedical	64	58	45	63	59	62	60	57	565	54	48	102	701
Chemical	255	239	197	190	153	160	127	139	2036	124	128	252	4625
Civil	191	176	130	132	124	113	91	99	1406	98	105	203	2715
Ceramic	21	21	19	15	12	18	19	16	221	14	11	25	508
Computer	-	-	-	60	65	75	40	36	276	28	29	57	333
Electrical	474	453	338	310	293	259	214	255	3693	228	201	429	7140
Electronics	93	77	57	46	47	48	30	40	645	42	45	87	1456
Industrial	104	89	51	62	36	39	35	45	648	34	35	69	1082
Nuclear	84	94	75	59	78	67	61	60	765	57	61	118	966
Engineering mechanics ..	118	102	95	86	59	58	45	40	903	42	38	80	2051
Engineering physics	25	24	15	12	17	18	12	10	196	12	12	24	826
Mechanical	278	235	221	188	182	152	149	152	2169	142	119	261	4212
Metallurgy	109	88	77	62	53	52	49	42	837	57	33	90	2046
Systems design	-	-	-	51	44	41	31	45	212	35	32	67	279
Operations research	41	67	89	46	53	44	48	38	426	43	40	83	509
Fuel technology	-	-	2	5	6	5	1	4	23	8	3	11	34
Sanitary & environmental	57	51	39	49	45	49	46	54	472	52	52	104	857
Mining	12	4	1	3	1	1	3	2	35	1	4	5	45
Materials science	52	84	54	76	56	63	71	58	574	68	55	123	716
Engineering, general ...	24	20	21	19	19	21	22	14	204	24	12	36	317
Engineering, other	158	97	104	52	50	53	38	34	877	32	38	70	1409

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

U.S. Citizenship

Field of study	Year of doctorate 1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Mathematical sciences	233	271	309	398	486	575	631	682	797	885	5267	1018	1009
Algebra	30	23	49	65	64	87	107	115	128	162	830	172	174
Analysis & funct anal[26]	61	82	92	102	154	147	161	177	217	224	1417	205	221
Geometry	11	11	18	14	20	20	19	23	23	20	179	32	22
Logic	2	7	12	12	11	22	20	20	25	26	157	31	28
Number theory	8	10	14	19	18	17	15	15	15	16	147	24	25
Probability & math stat.[27]	49	46	39	48	72	70	84	95	95	42	640	60	82
Topology	23	15	33	41	50	84	82	79	94	98	599	126	106
Topological algebra[28]	14	12	8	15	13	14	11	8	-	-	95	-	-
Computing theory	2	10	3	10	12	14	13	32	38	59	193	103	119
Computer science[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[29]	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	21	39	34	54	58	78	90	85	109	101	669	117	94
Mathematics, general	7	11	5	3	3	7	9	20	28	61	154	68	67
Mathematics, other	5	5	2	15	11	15	20	13	25	76	187	80	71
Life sciences	1354	1354	1496	1603	1722	1947	2100	2325	2741	3052	19694	3359	3642
Biological sciences	1048	1016	1156	1243	1359	1570	1725	1926	2303	2571	15917	2804	3055
Biochemistry	211	210	224	252	283	302	361	389	453	424	3109	470	517
Biophysics	21	21	30	32	32	50	64	80	89	99	518	92	82
Biometry, biostatistics.	11	5	8	9	15	19	14	21	18	16	136	29	35
Anatomy	30	40	42	43	49	76	60	80	81	105	606	106	133
Cytology[30]	-	-	14	15	23	24	21	33	31	43	204	49	50
Embryology	2	1	8	12	19	13	36	36	34	37	198	39	34
Immunology[31]	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	101	93	70	86	105	112	133	111	156	165	1132	153	180
Ecology	28	29	36	39	35	32	28	50	72	82	431	100	113
Hydrobiology[8]	4	3	3	15	6	13	10	16	8	9	87	24	26
Microbiology & bacteriol[32]	159	146	175	170	155	224	235	272	303	329	2168	330	354
Animal & plant physiol[33]	107	116	44	-	-	-	-	-	-	-	267	-	-
Animal physiology[33]	1	0	68	120	159	172	156	203	247	287	1413	292	314
Plant physiology[33]	3	0	20	50	40	54	50	53	61	61	392	78	69
Nutrition[34]	13	1	-	-	-	-	-	-	-	-	14	-	-
Zoology	163	150	173	170	178	194	249	212	281	258	2028	317	329
Genetics	51	47	61	70	63	63	77	95	104	91	722	110	112
Entomology	65	76	82	65	73	105	98	105	112	135	916	141	177
Molecular biology[17]	-	-	-	-	-	1	-	-	-	74	75	81	98
Nutrition/dietetics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	8	20	16	18	25	26	32	32	42	32	251	28	47
Pharmacology	50	39	63	59	74	76	78	97	113	131	780	119	148
Biological sci, general.	10	4	8	2	6	2	5	18	39	71	165	101	123
Biological sci, other	10	15	11	16	19	12	18	23	59	122	305	145	114
Agricultural sciences	306	338	340	360	363	377	375	399	438	481	3777	555	587
Agronomy	96	103	92	106	104	97	105	116	98	99	1016	135	120
Animal husbandry[17]	94	107	89	92	93	103	106	84	99	66	933	97	68
Food sci & technology	-	-	-	-	-	-	-	-	-	25	25	24	37
Fish & wildlife	15	14	18	17	19	10	19	31	24	33	200	42	54
Forestry	20	25	29	24	31	39	39	45	53	68	373	58	69
Horticulture	32	34	36	28	38	47	35	38	44	48	380	43	48
Soils & soil science[35]	-	-	-	-	-	-	-	-	-	17	17	19	24
Animal sci & nutrition[36]	-	-	-	-	-	-	-	-	-	1	1	-	-
Phytopathology	42	45	60	69	49	58	48	51	57	69	548	70	66
Agriculture, general	0	1	1	1	2	2	0	2	1	12	22	2	0
Agriculture, other	7	9	15	23	27	21	23	32	62	43	262	65	101
Social sciences	720	764	809	867	946	1060	1136	1375	1548	1713	10938	2049	2386
Anthropology	66	47	71	75	68	73	82	129	126	161	898	187	212
Archeology	7	5	6	9	9	9	10	10	15	9	89	8	14
Hist & phil of science[37]	-	-	-	-	-	-	-	-	-	-	-	-	32
Linguistics	39	35	30	33	44	50	74	68	90	85	548	102	128
Sociology	144	144	162	175	176	205	224	273	309	342	2154	419	489
Economics	255	314	313	326	376	389	428	468	517	513	3899	612	581
Econometrics	5	4	9	22	11	16	14	19	20	11	131	18	20
Agricultural economics[17]	-	-	-	-	-	-	-	-	-	59	59	77	107
Statistics[38]	-	-	-	-	-	-	-	8	10	71	89	78	96
Geography	49	38	45	44	47	59	42	60	70	84	538	105	123
Pol sci, public admin[39]	155	177	173	183	215	259	262	340	391	378	2533	443	584
Political science[39]	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	728	779	790	845	938	905	1051	1219	1374	1642	10271	1775	1992
Clinical	232	289	272	290	378	325	333	404	470	508	3521	533	597
Counseling & guidance	61	64	58	47	45	45	56	74	99	100	649	108	134
Developmental & gerontol	21	20	23	15	18	23	38	46	54	66	324	78	107
Educational	58	73	51	33	37	33	45	54	68	70	522	82	90
School	7	15	9	17	21	15	10	29	24	33	180	45	69
Exper, compar, physiol[40]	182	166	71	3	3	4	1	2	-	-	432	-	-
Experimental[40]	-	1	105	183	203	205	253	270	283	304	1807	346	376
Comparative[40]	-	0	11	18	10	9	9	16	17	15	105	20	13
Physiological[40]	-	0	25	48	32	37	66	78	87	107	480	108	122
Human engineering[41]	5	4	4	1	0	0	3	0	0	-	17	-	-
Industrial & personnel	33	26	35	40	44	35	47	55	41	54	410	70	61
Personality	10	15	23	28	34	28	34	31	30	34	267	47	42
Psychometrics	15	17	16	14	16	13	21	14	17	18	161	15	33
Social	70	59	73	87	81	95	94	98	115	171	943	134	153
Psychology, general	26	25	10	15	11	30	13	34	49	101	314	109	106
Psychology, other	8	5	4	6	5	8	8	14	20	61	139	80	89
Total, non-sci & engineering[42]	3208	3377	3708	4131	4627	5312	5659	6645	7596	8633	53096	10589	11635
Total, all fields	8469	8961	9841	10926	12121	13772	14974	17029	19228	21541	136862	24915	26758

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

U.S. Citizenship

Field of study	Year of doctorate												
	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Mathematical sciences	1030	952	876	849	748	714	704	715	8614	676	649	1324	15205
Algebra	145	122	98	100	92	73	72	72	1120	65	35	100	2050
Analysis & funct anal ..	207	197	160	133	114	114	91	79	1521	68	71	139	3077
Geometry	26	23	26	19	16	18	18	21	221	27	25	52	452
Logic	33	29	18	34	26	13	19	18	249	20	17	37	443
Number theory	32	27	19	19	22	28	16	16	228	21	20	41	416
Probability & math stat.	113	110	103	127	105	111	117	111	1039	88	101	189	1868
Topology	115	98	102	78	54	56	48	50	833	48	44	92	1524
Topological algebra	-	-	-	-	-	-	-	-	-	-	-	-	95
Computing theory	134	174	149	119	123	83	45	21	1070	11	11	22	1285
Computer science	-	1	-	-	-	24	85	163	273	156	168	324	597
Operations research	-	3	13	37	27	24	30	31	165	24	16	40	205
Applied mathematics	85	80	90	79	76	83	77	72	853	73	83	156	1678
Mathematics, general ...	73	53	59	62	57	51	53	39	582	43	37	80	816
Mathematics, other......	67	35	39	41	36	36	33	22	460	32	20	52	699
Life sciences	3527	3556	3210	3473	3497	3396	3522	3674	34856	3849	3886	7735	62285
Biological sciences	2994	3014	2749	2910	2998	2909	2992	3130	29555	3279	3292	6571	52043
Biochemistry	471	502	468	503	493	499	493	501	4917	589	553	1142	9168
Biophysics	83	85	92	85	91	106	88	107	916	84	79	163	1597
Biometry, biostatistics.	19	26	20	32	37	39	35	36	308	33	40	73	517
Anatomy	144	119	100	104	122	98	130	139	1195	133	145	278	2079
Cytology	34	31	38	32	40	34	29	37	374	38	41	79	657
Embryology	33	27	20	25	11	19	15	14	237	16	19	35	470
Immunology	15	47	53	62	74	85	80	122	538	110	138	248	786
Botany	163	190	136	136	158	144	124	124	1508	126	126	252	2892
Ecology	121	118	133	128	132	150	161	165	1321	155	182	337	2089
Hydrobiology	23	10	16	8	13	14	3	10	147	-	-	-	234
Microbiology & bacteriol	338	329	304	304	301	266	297	304	3127	314	301	615	5910
Animal & plant physiol .	-	-	-	-	-	-	-	-	-	-	-	-	267
Animal physiology	295	316	265	293	258	275	276	287	2871	317	302	619	4903
Plant physiology	57	66	54	46	46	28	34	42	520	42	53	95	1007
Nutrition	-	-	-	-	-	-	-	-	-	-	-	-	14
Zoology	330	301	232	247	242	228	216	228	2670	209	178	387	5085
Genetics	116	93	82	122	105	118	104	119	1081	126	137	263	2066
Entomology	151	135	126	132	115	116	111	119	1323	120	108	228	2467
Molecular biology	135	102	116	131	130	111	149	121	1174	158	167	325	1574
Nutrition/dietetics	-	-	-	-	58	52	64	81	255	75	76	151	406
Parasitology	-	19	19	14	17	13	10	16	108	16	14	30	138
Pathology	65	48	55	48	77	75	83	71	597	87	83	170	1018
Pharmacology	162	120	127	141	176	169	189	195	1546	221	248	469	2795
Biological sci, general.	102	151	152	149	155	145	155	147	1380	167	169	336	1881
Biological sci, other ..	132	179	141	168	147	125	146	145	1442	143	133	276	2023
Agricultural sciences	533	542	461	563	499	487	530	544	5301	570	594	1164	10242
Agronomy	90	90	65	73	75	67	80	76	871	81	109	190	2077
Animal husbandry	51	29	12	17	14	17	17	20	342	19	14	33	1308
Food sci & technology ..	45	40	55	47	53	52	64	62	479	52	47	99	603
Fish & wildlife	48	41	45	52	50	59	53	62	506	58	62	120	826
Forestry	56	59	45	61	56	49	64	62	579	61	67	128	1080
Horticulture	42	33	21	51	29	39	37	49	392	44	43	87	859
Soils & soil science ...	40	51	38	58	31	32	54	30	377	43	44	87	481
Animal sci & nutrition .	44	76	76	83	84	69	60	71	563	83	84	167	731
Phytopathology	56	68	56	67	52	57	59	59	610	77	68	145	1303
Agriculture, general ...	3	4	0	1	4	0	3	1	18	2	1	3	43
Agriculture, other	58	51	48	53	51	46	39	52	564	50	55	105	931
Social sciences	2540	2599	2480	2617	2561	2422	2299	2153	24106	2142	2044	4186	39230
Anthropology	231	289	334	345	377	338	340	330	2983	332	319	651	4532
Archeology	17	20	17	19	20	22	30	30	197	25	25	50	336
Hist & phil of science .	36	27	27	25	28	28	21	25	249	21	22	43	292
Linguistics	116	155	115	145	111	133	118	99	1222	125	117	242	2012
Sociology	539	498	514	556	614	619	518	534	5300	495	493	988	8442
Economics	628	631	567	628	601	549	517	514	5828	488	521	1009	10736
Econometrics	20	20	11	13	19	16	14	14	165	14	7	21	317
Agricultural economics .	103	104	110	91	93	81	90	72	928	96	91	187	1174
Statistics	51	33	17	20	22	17	24	9	367	20	18	38	494
Geography	136	170	150	154	125	117	119	105	1304	103	83	186	2028
Pol sci, public admin ..	663	652	617	620	32	-	-	-	3611	-	-	-	6144
Political science	-	-	1	1	519	502	508	421	1952	423	348	771	2723
Psychology	2119	2285	2344	2552	2727	2774	2804	2850	24222	2859	3106	5965	40458
Clinical	665	717	730	774	865	910	961	985	7738	1037	1210	2247	13506
Counseling & guidance ..	143	192	192	219	255	260	264	301	2068	292	331	623	3340
Developmental & gerontol	127	138	144	167	182	192	201	210	1546	198	194	392	2262
Educational	114	104	108	127	117	126	135	147	1150	126	170	296	1968
School	87	105	85	101	137	142	122	118	1011	172	130	302	1493
Exper, compar, physiol .	-	-	-	-	-	-	-	-	-	-	-	-	432
Experimental	334	310	335	331	339	315	283	277	3246	287	267	554	5607
Comparative	21	23	23	21	25	21	20	21	208	8	11	19	332
Physiological	110	115	109	115	127	125	117	97	1145	103	96	199	1824
Human engineering	-	-	-	-	-	-	-	-	-	-	-	-	17
Industrial & personnel .	50	70	72	56	62	75	68	82	666	64	83	147	1223
Personality	45	48	58	61	57	62	39	40	499	42	48	90	856
Psychometrics	18	21	21	14	24	16	13	22	197	19	24	43	401
Social	158	194	181	205	186	191	192	204	1798	182	166	348	3089
Psychology, general	114	123	152	199	187	199	247	159	1595	159	202	361	2270
Psychology, other	133	125	134	162	163	140	142	187	1355	170	174	344	1838
Total, non-sci & engineering .	12573	13231	12885	13066	13496	12713	12204	12206	124598	12038	11718	23756	201450
Total, all fields	27481	27914	26343	27081	27269	26121	25290	25463	264635	25215	24990	50205	451702

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S. Citizenship, total

Field of study	Year of doctorate 1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, science & engineering	955	1046	1217	1293	1549	1861	2047	2349	2570	2808	17695	3238	3551
Physical sciences	184	237	249	275	311	365	403	500	458	505	3487	626	668
Physics and astronomy	65	82	116	120	118	170	169	225	217	224	1506	286	321
Astronomy & astrophysics[1]	3	1	2	3	7	9	14	8	15	0	62	-	-
Astronomy[1]	-	-	-	-	-	-	-	-	-	4	4	4	7
Astrophysics[1]	-	-	-	-	-	-	-	-	-	7	7	13	4
Atomic & molecular	4	5	10	6	12	10	16	15	19	17	114	19	17
Electromagnetism[2]	2	1	1	5	6	3	5	9	4	2	38	3	4
Mechanics[3]	0	1	1	1	1	1	2	2	1	2	12	2	0
Acoustics	0	1	2	2	0	1	2	1	1	1	11	0	5
Fluids	0	3	4	3	2	5	6	18	13	4	58	6	6
Plasma[4]	-	-	-	-	-	-	-	0	0	10	10	19	18
Optics	1	1	1	3	0	3	1	1	2	2	15	3	4
Thermal[5]	1	0	0	1	3	0	4	2	0	3	14	2	3
Elementary particles	2	12	24	35	20	33	34	50	44	38	292	59	61
Nuclear[6]	1	1	-	-	-	-	-	-	-	-	2	-	-
Nuclear structure	18	18	33	31	22	33	26	37	26	24	268	36	39
Solid state	13	13	21	17	27	55	43	62	56	52	359	53	74
Theoretical physics[7]	17	21	12	0	-	-	-	-	-	-	50	-	-
Physics, general	1	0	0	3	5	4	2	5	13	46	79	43	37
Physics, other	2	4	5	10	13	13	14	15	23	12	111	24	42
Chemistry	119	155	133	155	193	195	234	275	241	281	1981	340	347
Analytical	7	8	10	7	10	8	8	13	11	7	89	19	15
Inorganic	11	13	7	6	10	16	17	15	21	31	147	24	23
Organic	37	55	53	47	67	71	86	89	73	84	662	92	109
Nuclear chemistry	2	2	4	4	8	4	3	6	7	8	48	6	7
Physical	33	44	40	52	48	57	62	78	76	64	554	97	80
Theoretical chemistry	0	4	1	3	10	4	5	8	8	10	53	9	17
Agricultural and food[8]	15	17	10	14	18	14	23	30	15	18	174	28	23
Pharmaceutical	10	7	6	15	12	17	21	21	12	22	143	23	20
Polymer[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	4	1	0	5	4	2	3	4	11	22	56	25	23
Chemistry, other	0	4	2	2	6	2	6	11	7	15	55	17	30
Earth, env & marine sciences	45	37	26	63	49	67	62	73	83	108	613	104	84
Mineral, petrol, geochem[10]	14	12	10	19	9	21	12	25	19	0	141	-	-
Mineralogy, petrology[10]	-	-	-	-	-	-	-	-	0	10	10	12	8
Geochemistry[10]	-	-	-	-	-	-	-	-	1	13	14	9	11
Stratigraphy, sediment	8	9	5	4	7	8	5	10	7	8	71	11	6
Paleontology	1	2	3	5	2	6	9	1	5	1	35	1	3
Structural geology	1	0	0	1	2	3	4	3	1	2	17	1	1
Geophysics	9	8	2	3	5	5	9	11	9	16	77	24	15
Geophysics, solid earth.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Geomorph & glacial geol.	2	0	1	1	2	0	0	2	2	2	12	2	1
Hydrology & water res[12]	0	1	0	2	1	1	3	5	1	6	20	5	7
Oceanography	1	1	0	3	3	4	4	3	7	6	32	4	6
Marine science, other[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology[14]	6	1	2	9	7	5	3	4	11	13	61	12	8
Atmospheric phys & chem.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric sci, other[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]	3	3	3	9	7	11	10	4	11	0	61	-	-
Applied geology[15]	-	-	-	-	-	-	-	-	0	10	10	4	1
Fuel technology[15]	-	-	-	-	-	-	-	-	6	7	13	7	8
Earth science, general	-	-	0	5	2	1	0	3	2	7	20	7	4
Earth science, other	-	-	0	2	2	2	3	2	1	7	19	5	5
Engineering	183	209	278	300	356	457	529	638	709	809	4468	901	1048
Aeronaut & astronautical[16]	5	13	10	16	18	20	29	28	37	47	223	46	53
Agricultural	5	3	5	4	8	6	4	9	14	12	70	16	19
Biomedical[17]	-	-	-	-	-	-	-	-	-	3	3	7	11
Chemical	40	31	53	44	48	69	60	68	83	106	602	134	121
Civil	23	35	53	53	65	86	101	105	112	134	767	144	192
Ceramic	1	1	5	3	4	3	4	5	3	5	34	5	5
Computer[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	36	45	50	60	68	77	116	125	125	144	846	155	186
Electronics	10	12	12	12	18	19	30	32	33	31	209	31	28
Industrial	1	3	5	4	1	8	5	17	19	17	80	38	25
Nuclear[19]	-	-	-	-	-	-	-	-	-	29	29	32	17
Engineering mechanics	17	18	30	27	27	56	52	64	67	68	426	65	81
Engineering physics[19]	8	3	7	11	16	20	24	34	31	14	168	6	10
Mechanical	27	19	25	34	32	47	42	74	82	78	460	83	102
Metallurgy[20]	4	18	14	18	30	23	35	45	34	62	283	51	70
Systems design[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[21]	-	-	-	-	-	-	-	-	-	-	-	-	1
Fuel technology[22]	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	3	6	3	5	8	9	13	5	20	11	83	11	9
Textile[24]	0	0	0	0	0	0	0	0	1	0	1	-	-
Mining[25]	-	-	-	-	-	-	-	-	-	5	5	6	10
Materials science[17]	-	-	-	-	-	-	-	-	-	3	3	6	21
Engineering, general	0	0	0	1	0	1	1	6	6	13	28	10	10
Engineering, other	3	2	6	8	13	13	13	21	42	27	148	55	77

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S. Citizenship, total

Field of study	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, science & engineering	3793	3990	4024	3988	3753	3581	3476	3533	36927	3579	3755	7334	61956
Physical sciences	709	740	670	694	643	597	580	580	6512	577	584	1161	11160
Physics and astronomy	334	374	328	353	304	293	245	277	3115	240	253	493	5114
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	62
Astronomy	8	12	6	9	9	4	2	10	71	6	6	12	87
Astrophysics	3	9	7	16	11	9	13	7	97	10	6	16	120
Atomic & molecular	20	23	23	38	22	18	20	8	208	12	13	25	347
Electromagneticsm	1	3	2	2	4	2	1	2	24	-	-	-	62
Mechanics	2	2	2	1	1	-	-	-	10	-	-	-	22
Acoustics	3	2	1	1	0	3	1	2	18	4	3	7	36
Fluids	4	8	6	6	4	3	4	2	49	4	6	10	117
Plasma	24	16	11	15	15	18	13	18	167	12	11	23	230
Optics	3	7	6	11	8	5	9	12	68	15	15	30	113
Thermal	6	6	6	1	1	4	4	1	34	0	4	4	52
Elementary particles	53	63	42	29	35	36	29	29	437	33	27	60	789
Nuclear	-	-	-	-	-	-	-	-	-	-	-	-	2
Nuclear structure	39	47	37	37	27	24	20	25	331	20	17	37	636
Solid state	87	88	105	96	78	79	66	73	799	56	69	125	1283
Theoretical	-	-	-	-	-	-	-	-	-	-	-	-	50
Physics, general	50	64	54	59	66	57	48	60	538	52	63	115	732
Physics, other	26	24	20	32	22	31	15	28	264	16	13	29	404
Chemistry	375	366	342	341	344	304	335	303	3397	337	331	668	6046
Analytical	14	13	20	19	19	17	20	30	186	29	28	57	332
Inorganic	40	23	24	23	30	28	29	21	265	29	24	53	465
Organic	97	112	81	120	100	82	86	91	970	118	95	213	1845
Nuclear chemistry	5	3	7	1	6	4	2	3	44	2	1	3	95
Physical	92	103	91	79	72	67	71	56	808	53	48	101	1463
Theoretical chemistry	8	12	10	11	6	10	8	9	100	7	7	14	167
Agricultural and food	12	6	3	4	4	1	4	2	87	-	-	-	261
Pharmaceutical	21	14	14	18	21	17	20	13	181	20	12	32	356
Polymer	-	6	19	12	16	18	23	26	120	30	34	64	184
Chemistry, general	48	50	56	45	52	44	58	37	438	39	64	103	597
Chemistry, other	33	24	17	9	18	16	14	15	198	10	18	28	281
Earth, env & marine sciences	122	122	148	133	128	122	90	105	1158	106	100	206	1977
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	141
Mineralogy, petrology	15	16	11	11	3	5	0	2	78	2	3	5	93
Geochemistry	9	9	8	11	10	9	5	8	89	6	3	9	112
Stratigraphy, sediment	5	9	6	2	10	10	5	7	71	2	5	7	149
Paleontology	8	2	3	3	4	0	1	1	26	1	0	1	62
Structural geology	5	3	3	1	1	3	2	6	26	-	-	-	43
Geophysics	22	16	23	31	14	-	-	-	145	-	-	-	222
Geophysics, solid earth	-	-	-	-	11	17	12	15	55	22	17	39	94
Geomorph & glacial geol.	1	1	4	5	1	1	2	0	18	3	1	4	34
Hydrology & water res	4	10	7	1	4	8	12	4	62	6	8	14	96
Oceanography	6	12	13	12	14	17	14	13	111	9	7	16	159
Marine science, other	-	-	-	-	-	0	0	2	2	1	3	4	6
Meteorology	14	13	15	14	9	-	-	-	85	-	-	-	146
Atmospheric phys & chem.	-	-	-	-	3	1	5	2	11	3	1	4	15
Atmospheric dynamics	-	-	-	-	3	7	3	10	23	8	5	13	36
Atmospheric sci, other	-	-	-	-	9	11	6	13	39	17	12	29	68
Environ science, general	0	4	7	8	5	3	1	3	31	3	4	7	38
Environ science, other	7	1	0	4	1	3	3	4	23	3	7	10	33
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	61
Applied geology	10	5	14	8	7	3	2	2	56	5	5	10	76
Fuel technology	2	7	12	8	3	2	2	3	54	-	-	-	67
Earth science, general	4	11	12	7	12	10	9	4	80	9	14	23	123
Earth science, other	10	8	10	7	4	12	6	6	73	6	5	11	103
Engineering	1141	1179	1219	1233	1203	1099	1093	1137	11253	1150	1241	2391	18112
Aeronaut & astronautical	54	52	45	44	36	55	53	50	488	45	41	86	797
Agricultural	21	24	27	22	15	16	22	43	225	40	44	84	379
Biomedical	13	13	17	12	12	12	17	12	126	12	15	27	156
Chemical	127	161	182	176	150	142	129	144	1466	153	155	308	2376
Civil	170	177	157	149	175	153	137	128	1582	136	169	305	2654
Ceramic	10	5	4	7	12	11	5	6	70	10	13	23	127
Computer	-	-	-	42	51	48	36	41	218	34	41	75	293
Electrical	209	210	203	217	204	181	177	182	1924	160	184	344	3114
Electronics	32	37	27	30	32	35	23	43	318	31	21	52	579
Industrial	38	20	35	28	30	31	16	32	293	38	27	65	438
Nuclear	31	35	33	28	53	33	44	33	339	50	63	113	481
Engineering mechanics	89	74	69	76	54	43	46	43	640	45	37	82	1148
Engineering physics	14	9	10	7	2	2	3	7	70	4	10	14	252
Mechanical	126	126	145	131	120	106	129	126	1194	144	151	295	1949
Metallurgy	66	50	56	56	57	40	47	44	537	47	63	110	930
Systems design	-	-	-	28	25	28	31	27	139	26	34	60	199
Operations research	20	35	38	43	29	29	35	28	258	20	40	60	318
Fuel technology	-	5	8	10	11	13	18	18	83	23	16	39	122
Sanitary & environmental	18	27	26	22	28	18	19	12	190	14	18	32	305
Textile	-	-	-	-	-	-	-	-	-	-	-	-	1
Mining	4	8	1	3	5	1	4	2	44	3	3	6	55
Materials science	36	46	55	48	54	56	53	65	440	71	53	124	567
Engineering, general	4	14	18	13	18	11	13	13	124	11	11	22	174
Engineering, other	59	51	63	41	30	35	36	38	483	33	32	65	698

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S. Citizenship, total

Field of study	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
	Year of doctorate												
Mathematical sciences	55	52	75	75	92	95	122	129	156	166	1017	192	217
Algebra	5	2	11	13	8	10	18	15	17	19	118	19	26
Analysis & funct anal[26].	10	9	9	11	23	17	21	26	27	42	195	38	40
Geometry	1	2	3	0	6	3	3	5	7	5	35	8	13
Logic	0	0	1	4	4	4	2	3	5	1	24	5	4
Number theory	3	3	5	1	2	0	5	2	5	8	34	3	8
Probability & math stat.[27]	15	20	26	22	26	30	35	26	34	8	242	23	15
Topology	3	3	4	4	7	7	5	17	12	10	72	17	15
Topological algebra[28]	3	1	3	5	1	5	4	1	-	-	23	-	-
Computing theory	2	1	3	3	2	3	5	7	12	20	58	16	21
Computer science[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[29]	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	9	8	8	10	10	12	19	24	23	23	146	24	27
Mathematics, general	4	1	2	1	3	3	1	2	11	17	45	22	31
Mathematics, other	0	2	0	1	0	1	4	1	3	13	25	17	17
Life sciences	295	310	356	357	462	565	570	602	730	718	4965	778	833
Biological sciences	188	212	226	255	310	373	380	398	493	481	3316	532	520
Biochemistry	44	62	61	50	80	86	87	105	122	124	821	108	129
Biophysics	2	4	3	4	7	4	16	9	15	11	75	14	15
Biometry, biostatistics.	0	2	2	5	7	5	7	5	5	3	41	9	7
Anatomy	1	5	6	9	7	12	5	5	6	15	71	15	17
Cytology[30]	-	-	4	5	4	7	9	3	3	4	39	7	4
Embryology	0	0	0	2	3	6	1	1	2	1	16	2	3
Immunology[31]	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	17	19	26	21	23	29	24	16	33	20	228	24	22
Ecology	2	3	3	6	3	3	6	5	8	7	46	12	5
Hydrobiology[8]	1	0	0	1	1	2	2	1	0	0	8	4	1
Microbiology & bacteriol[32]	25	29	23	38	34	50	52	58	54	53	416	68	45
Animal & plant physiol[33].	12	15	9	-	-	-	-	-	-	-	36	-	-
Animal physiology[33]	1	0	7	15	22	19	27	34	41	31	197	48	42
Plant physiology[33]	2	0	9	21	13	22	24	19	24	27	161	18	21
Nutrition[34]	10	0	1	2	-	-	-	-	-	-	13	-	-
Zoology	11	16	12	15	17	29	17	14	31	24	186	24	24
Genetics	22	24	19	27	34	39	35	48	47	33	328	38	41
Entomology	29	19	20	19	31	25	30	38	42	41	294	37	40
Molecular biology[17]	-	-	-	-	-	-	-	-	-	15	15	14	11
Nutrition/dietetics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	3	1	7	3	6	10	6	16	12	8	72	12	17
Pharmacology	2	10	9	11	15	20	27	17	32	22	165	29	23
Biological sci, general.	3	0	0	0	0	1	0	1	6	12	23	16	26
Biological sci, other	1	3	5	1	3	4	5	3	10	30	65	33	27
Agricultural sciences	107	98	130	102	152	192	190	204	237	237	1649	246	313
Agronomy	39	40	49	31	51	69	60	58	70	73	540	63	71
Animal husbandry[17]	13	14	24	16	30	39	35	39	41	30	281	25	25
Food sci & technology	-	-	-	-	-	-	-	-	-	14	14	13	40
Fish & wildlife	1	0	4	4	5	3	2	1	1	4	25	5	7
Forestry	5	5	7	3	15	4	7	15	20	10	91	16	15
Horticulture	15	10	19	16	19	27	36	24	19	20	205	26	27
Soils & soil science[35]	-	-	-	-	-	-	-	-	-	19	19	22	33
Animal sci & nutrition[36].	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology	28	27	23	23	22	37	38	36	42	42	318	36	42
Agriculture, general	2	0	0	1	1	2	3	0	7	5	21	2	1
Agriculture, other	4	2	4	8	9	11	9	31	37	20	135	38	52
Social sciences	152	169	177	186	214	271	295	350	360	412	2586	538	580
Anthropology	3	8	7	5	10	7	14	13	10	16	93	23	23
Archeology	1	0	0	0	1	1	2	2	2	1	10	0	4
Hist & phil of science[37].	-	-	-	-	-	-	-	-	-	-	-	-	3
Linguistics	6	10	15	12	18	20	22	22	21	27	173	34	42
Sociology	16	20	17	31	19	32	33	47	48	58	321	83	91
Economics	82	84	79	82	112	136	147	172	184	155	1233	203	203
Econometrics	6	4	6	5	4	7	12	11	10	9	74	9	7
Agricultural economics[17].	-	-	-	-	-	-	-	-	-	33	33	37	62
Statistics[38]	-	-	-	-	-	-	-	6	10	24	40	43	35
Geography	14	11	11	12	16	11	13	15	16	29	148	29	35
Pol sci, public admin[39].	24	32	42	39	34	57	52	62	59	60	461	77	75
Political science[39]	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	41	32	56	37	65	41	66	57	74	90	559	99	121
Clinical	9	9	20	12	21	10	18	14	14	16	143	14	20
Counseling & guidance	3	3	2	0	1	2	0	4	4	8	27	4	10
Developmental & gerontol	1	0	1	3	1	4	3	1	8	5	27	6	7
Educational	2	2	4	2	0	1	2	3	5	4	25	6	6
School	0	0	0	0	1	1	0	1	1	0	4	0	0
Exper, compar, physiol[40].	14	5	6	0	0	0	0	0	-	-	25	-	-
Experimental[40]	-	0	4	12	16	8	14	12	12	19	97	18	20
Comparative[40]	-	0	4	1	0	2	0	0	0	2	9	2	2
Physiological[40]	-	0	0	2	5	5	7	7	6	1	33	8	8
Industrial & personnel	1	1	1	1	5	2	1	2	5	5	24	5	7
Personality	1	1	3	1	2	0	1	1	1	3	14	3	4
Psychometrics	0	2	2	0	6	3	6	1	2	1	23	3	3
Social	9	8	8	3	6	3	9	7	8	11	72	23	17
Psychology, general	1	0	1	0	1	0	4	4	6	9	26	4	14
Psychology, other	0	1	0	0	0	0	1	0	2	6	10	3	3
Total, non-sci & engineering[41].	221	260	301	312	382	452	497	575	744	761	4505	910	1046
Total, all fields	1176	1306	1518	1605	1931	2313	2544	2924	3314	3569	22200	4148	4597

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S. Citizenship, total

Field of study	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Mathematical sciences	234	254	295	272	238	225	233	244	2404	257	289	546	3967
Algebra	22	20	27	26	24	15	15	16	210	13	19	32	360
Analysis & funct anal ..	34	45	48	47	27	38	26	32	375	23	34	57	627
Geometry	9	9	12	7	7	8	4	4	81	8	4	12	128
Logic	5	4	1	4	8	4	5	3	43	4	1	5	72
Number theory	4	4	4	8	4	4	2	1	42	7	4	11	87
Probability & math stat.	36	46	43	45	57	46	51	53	415	62	61	123	780
Topology	15	13	15	16	17	14	8	11	141	9	11	20	233
Topological algebra	-	-	-	-	-	-	-	-	-	-	-	-	23
Computing theory	29	44	48	44	24	18	10	4	258	2	5	7	323
Computer science	-	-	-	-	-	4	31	44	79	56	60	116	195
Operations research	-	0	9	18	9	17	12	12	77	16	17	33	110
Applied mathematics	31	35	42	18	27	29	29	36	298	27	34	61	505
Mathematics, general ...	28	28	37	34	27	21	27	28	283	22	28	50	378
Mathematics, other	21	6	9	5	7	7	13	0	102	8	11	19	146
Life sciences	844	867	907	844	756	764	744	723	8060	778	769	1547	14572
Biological sciences	527	558	571	507	475	480	434	429	5033	447	411	858	9207
Biochemistry	98	116	110	107	107	91	102	90	1058	72	74	146	2025
Biophysics	19	25	22	13	22	26	15	20	191	18	19	37	303
Biometry, biostatistics.	10	9	15	4	9	13	10	8	94	9	7	16	151
Anatomy	11	7	11	12	6	10	11	11	111	13	7	20	202
Cytology	2	6	2	9	3	1	3	2	39	6	5	11	89
Embryology	2	2	2	2	2	0	0	0	15	2	1	3	34
Immunology	3	3	15	9	17	11	12	12	82	15	10	25	107
Botany	29	19	30	19	22	13	18	16	212	14	14	28	468
Ecology	11	16	14	14	8	13	9	8	110	13	12	25	181
Hydrobiology	1	1	1	0	0	0	0	0	8	-	-	-	16
Microbiology & bacteriol	52	49	61	55	45	39	44	32	490	41	45	86	992
Animal & plant physiol .	-	-	-	-	-	-	-	-	-	-	-	-	36
Animal physiology	46	40	40	37	25	43	27	23	371	22	23	45	613
Plant physiology	18	25	21	20	16	15	9	14	177	8	14	22	360
Nutrition	0	0	0	0	0	0	0	0	0	0	0	0	13
Zoology	25	25	15	19	15	21	9	14	191	13	13	26	403
Genetics	40	35	39	30	33	19	20	20	315	28	18	46	689
Entomology	43	47	41	37	29	36	31	41	382	38	33	71	747
Molecular biology	20	16	23	25	17	20	23	18	187	25	14	39	241
Nutrition/dietetics	0	0	0	0	26	30	23	23	102	13	19	32	134
Parasitology	0	0	6	4	1	4	3	5	23	6	3	9	32
Pathology	19	20	17	12	15	16	7	12	147	18	18	36	255
Pharmacology	23	38	31	20	21	25	21	19	250	32	27	59	474
Biological sci, general.	18	27	19	19	21	20	22	22	210	24	21	45	278
Biological sci, other ..	37	32	36	40	15	14	15	19	268	17	14	31	364
Agricultural sciences	317	309	336	337	281	284	310	294	3027	331	358	689	5365
Agronomy	51	62	61	61	68	54	52	59	602	69	64	133	1275
Animal husbandry	17	6	5	4	3	7	4	5	101	6	5	11	393
Food sci & technology ..	36	52	44	63	38	53	51	43	433	50	55	105	552
Fish & wildlife	1	7	9	11	4	7	8	4	63	14	2	16	104
Forestry	18	20	27	24	23	15	24	24	206	18	24	42	339
Horticulture	43	17	23	25	21	20	27	18	247	28	37	65	517
Soils & soil science ...	44	50	50	38	37	38	43	41	396	36	43	79	494
Animal sci & nutrition .	24	37	53	46	34	32	38	39	303	33	59	92	395
Phytopathology	37	32	31	33	31	25	30	25	322	39	30	69	709
Agriculture, general ...	2	0	5	7	4	6	3	5	35	1	4	5	61
Agriculture, other	44	26	28	25	18	27	30	31	319	37	35	72	526
Social sciences	614	698	654	656	653	654	621	626	6294	590	645	1235	10115
Anthropology	18	26	28	31	40	38	46	43	316	31	35	66	475
Archeology	1	1	3	4	2	1	2	4	22	1	2	3	35
Hist & phil of science .	3	3	6	2	7	1	4	2	31	0	4	4	35
Linguistics	38	51	44	47	41	51	49	48	445	52	50	102	720
Sociology	88	90	95	111	103	95	80	90	926	98	96	194	1441
Economics	215	260	235	217	239	244	230	247	2293	238	253	491	4017
Econometrics	13	11	8	14	11	13	8	7	101	8	10	18	193
Agricultural economics .	57	73	70	70	66	60	65	76	636	61	76	137	806
Statistics	32	28	16	19	12	17	20	14	236	13	20	33	309
Geography	38	43	32	29	28	35	37	20	326	22	22	44	518
Pol sci, public admin ..	111	112	117	112	7	0	0	0	611	0	0	0	1072
Political science	-	-	0	0	97	99	80	75	351	66	77	143	494
Psychology	129	130	131	156	127	120	115	118	1246	121	127	248	2053
Clinical	12	25	26	31	14	17	25	15	199	22	21	43	385
Counseling & guidance ..	7	7	8	11	10	7	10	12	86	4	19	23	136
Developmental & gerontol	8	11	10	14	8	11	5	11	91	9	6	15	133
Educational	11	9	7	4	7	9	8	12	79	6	8	14	118
School	2	2	4	2	6	1	2	3	22	3	1	4	30
Exper, compar, physiol .	-	-	-	-	-	-	-	-	-	-	-	-	25
Experimental	17	22	18	18	16	22	16	15	182	19	13	32	311
Comparative	0	1	0	1	3	1	0	0	10	0	0	0	19
Physiological	9	7	9	9	6	7	9	4	76	5	5	10	119
Industrial & personnel .	5	5	8	7	10	6	5	5	63	2	4	6	93
Personality	4	2	2	1	5	1	2	1	25	1	1	2	41
Psychometrics	7	3	3	3	3	3	2	2	32	2	3	5	60
Social	24	18	21	28	23	11	12	10	187	8	11	19	278
Psychology, general	9	12	10	17	12	15	6	14	113	13	17	30	169
Psychology, other	14	6	5	10	4	9	13	14	81	27	18	45	136
Total, non-sci & engineering .	1132	1182	1161	1262	1270	1235	1289	1372	11859	1356	1441	2797	19161
Total, all fields	4925	5172	5185	5250	5023	4816	4765	4905	48786	4935	5196	10131	81117

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S., permanent residents

Field of study	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
	Year of doctorate												
Total, science & engineering .	219	200	196	279	367	436	451	679	765	938	4530	1219	1465
Physical sciences	41	50	42	48	80	85	97	143	126	170	882	263	305
Physics and astronomy	17	14	19	24	27	42	40	73	63	67	386	99	131
Astronomy & astrophysics[1]	1	0	0	0	1	2	4	4	1	0	13	-	-
Astronomy[1]	-	-	-	-	-	-	-	-	-	1	1	2	4
Astrophysics[1]	-	-	-	-	-	-	-	-	-	1	1	3	0
Atomic & molecular	2	1	3	2	2	6	4	6	10	6	42	6	2
Electromagnetism[2]	1	0	0	3	3	0	2	4	1	1	15	2	2
Mechanics[3]	0	0	1	0	0	0	2	1	0	1	5	1	0
Acoustics	0	0	1	0	0	0	0	1	0	1	3	0	3
Fluids	0	2	1	1	0	2	1	6	6	2	21	4	5
Plasma[4]	-	-	-	-	-	-	-	0	0	2	2	10	6
Optics	0	0	0	0	0	1	0	0	0	2	3	1	3
Thermal[5]	0	0	0	0	2	0	0	0	0	0	2	0	2
Elementary particles ...	1	3	2	7	4	10	7	15	8	7	64	12	21
Nuclear structure	4	2	4	5	2	7	7	9	10	7	57	15	19
Solid state	2	1	6	2	10	12	10	19	16	21	99	18	29
Theoretical physics[7]	6	4	0	0	0	-	-	-	-	-	10	-	-
Physics, general	0	0	0	1	0	0	1	2	6	10	20	19	15
Physics, other	0	1	1	3	3	2	2	6	5	5	28	6	20
Chemistry	24	36	23	24	53	43	57	70	63	103	496	164	174
Analytical	0	2	1	1	5	1	2	2	1	1	16	9	10
Inorganic	4	5	0	1	4	3	2	5	7	12	43	11	14
Organic	9	12	11	8	21	17	18	23	24	36	179	39	47
Nuclear chemistry	0	0	1	0	3	2	0	2	1	3	12	3	3
Physical	9	12	8	9	13	13	21	19	17	20	141	52	34
Theoretical chemistry ..	0	0	0	1	2	0	0	2	3	2	10	3	12
Agricultural and food[8] ..	0	4	1	0	1	3	7	9	7	8	40	15	14
Pharmaceutical	2	0	0	3	1	3	5	3	2	11	30	11	12
Polymer[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	0	0	0	0	1	1	2	0	0	4	8	11	9
Chemistry, other	0	1	1	1	2	0	0	5	1	6	17	10	19
Earth, env & marine sciences	10	3	3	12	11	21	10	14	17	30	131	33	39
Mineral, petrol, geochem[10]	5	0	2	2	3	4	2	5	4	0	27	-	-
Mineralogy, petrology[10] ..	-	-	-	-	-	-	-	-	-	2	2	5	3
Geochemistry[10]	-	-	-	-	-	-	-	-	1	5	6	1	5
Stratigraphy, sediment .	1	2	0	1	1	4	0	0	0	3	12	3	3
Paleontology	0	0	0	2	0	1	1	0	1	0	5	0	2
Structural geology	1	0	0	1	0	1	1	1	0	0	5	1	0
Geophysics	2	0	0	0	1	2	1	2	2	5	15	9	10
Geophysics, solid earth.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Geomorph & glacial geol.	0	0	0	0	0	0	0	0	1	0	1	0	0
Hydrology & water res[12] ..	0	0	0	1	0	1	0	1	0	2	5	1	2
Oceanography	1	0	0	0	2	2	1	1	1	1	9	1	3
Marine science, other[13] ..	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology[14]	0	0	1	2	1	2	0	0	2	5	13	5	6
Atmospheric phys & chem.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics ...[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric sci, other[11].	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other .	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]	0	1	0	1	2	3	3	1	1	0	12	0	0
Applied geology[15]	-	-	-	-	-	-	-	-	-	1	1	1	1
Fuel technology[15]	-	-	-	-	-	-	-	-	3	2	5	4	4
Earth science, general .	-	-	0	1	0	1	0	2	0	2	6	2	0
Earth science, other ...	-	-	0	1	1	0	1	1	1	2	7	0	0
Engineering	54	55	60	85	109	138	144	229	273	349	1496	430	530
Aeronaut & astronautical[16]	1	4	1	6	7	7	7	12	14	25	84	23	26
Agricultural	2	0	1	1	2	1	1	0	6	5	19	2	7
Biomedical[17]	-	-	-	-	-	-	-	-	-	2	2	6	4
Chemical	5	8	10	14	20	19	14	23	23	48	186	82	62
Civil	9	4	8	10	15	19	21	31	34	45	196	58	88
Ceramic	1	0	3	3	2	2	2	2	2	2	19	3	3
Computer[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	13	12	13	15	22	21	35	46	45	65	287	74	102
Electronics	4	4	4	3	7	8	12	22	20	18	102	19	15
Industrial	0	0	1	2	1	6	1	2	6	9	28	9	12
Nuclear[19]	-	-	-	-	-	-	-	-	-	9	9	14	3
Engineering mechanics ..	3	8	9	9	6	21	18	28	35	35	172	34	49
Engineering physics[19]	2	1	2	1	3	9	6	13	13	6	56	3	6
Mechanical	11	10	8	10	10	11	14	26	32	32	164	38	54
Metallurgy[20]	2	3	0	6	9	3	7	10	14	21	75	23	30
Systems design	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[21]	-	-	-	-	-	-	-	-	-	-	-	-	1
Fuel technology[22]	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	0	1	0	1	3	3	2	3	7	0	20	3	4
Mining[25]	-	-	-	-	-	-	-	-	-	4	4	2	7
Materials science[17]	-	-	-	-	-	-	-	-	-	3	3	2	12
Engineering, general ...	0	0	0	1	0	1	1	2	2	5	12	5	8
Engineering, other	1	0	0	3	2	7	3	7	20	15	58	30	37

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S., permanent residents

Field of study	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, science & engineering .	1624	1563	1382	1246	1078	979	970	927	12453	935	869	1804	18787
Physical sciences	322	303	257	236	217	191	183	165	2442	151	146	297	3621
Physics and astronomy	125	126	98	109	76	86	64	70	984	51	53	104	1474
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	13
Astronomy	5	2	0	2	1	2	1	4	23	3	1	4	28
Astrophysics	2	0	1	3	2	1	3	0	15	2	3	5	21
Atomic & molecular	9	8	7	11	5	3	8	2	61	3	2	5	108
Electromagnatism	0	1	1	2	3	2	0	0	13	-	-	-	28
Mechanics	0	1	0	0	0	-	-	-	2	-	-	-	7
Acoustics	2	1	1	0	0	0	0	0	7	2	2	4	14
Fluids	4	4	4	0	3	1	1	2	28	0	1	1	50
Plasma	9	6	4	6	6	8	4	4	63	4	1	5	70
Optics	0	3	1	4	2	1	2	2	19	5	4	9	31
Thermal	1	4	3	0	0	2	1	0	13	0	1	1	16
Elementary particles ...	14	21	10	8	6	8	2	7	109	7	6	13	186
Nuclear structure	14	16	10	10	4	9	4	4	105	4	1	5	167
Solid state	44	33	33	42	25	22	19	25	290	11	13	24	413
Theoretical	-	-	-	-	-	-	-	-	-	-	-	-	10
Physics, general	12	17	13	14	15	17	12	14	148	7	15	22	190
Physics, other	9	9	10	7	4	10	7	6	88	3	3	6	122
Chemistry	197	177	159	127	141	105	119	95	1458	100	93	193	2147
Analytical	8	8	9	4	3	9	8	12	80	11	8	19	115
Inorganic	20	11	9	6	17	3	8	8	107	7	6	13	163
Organic	56	49	43	41	43	33	28	26	405	37	33	70	654
Nuclear chemistry	3	3	3	0	3	1	2	1	22	0	0	0	34
Physical	49	49	46	34	26	27	22	21	360	15	13	28	529
Theoretical chemistry ..	2	6	4	5	1	2	0	1	36	0	1	1	47
Agricultural and food ..	7	4	1	2	2	0	1	0	46	-	-	-	86
Pharmaceutical	14	9	12	12	14	9	17	8	118	6	5	11	159
Polymer	-	4	8	5	7	5	11	4	44	13	12	25	69
Chemistry, general	22	19	17	14	17	8	15	10	142	8	8	16	166
Chemistry, other	16	15	7	4	8	8	7	4	98	3	7	10	125
Earth, env & marine sciences	58	49	47	38	32	22	22	34	374	26	15	41	546
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	27
Mineralogy, petrology ..	8	3	3	1	1	1	0	1	26	1	0	1	29
Geochemistry	3	3	1	3	3	6	1	1	27	0	2	2	35
Stratigraphy, sediment .	5	3	2	0	1	0	2	4	23	0	0	0	35
Paleontology	3	1	2	1	1	0	0	0	10	0	0	0	15
Structural geology	1	0	0	0	0	0	0	1	3	0	0	0	8
Geophysics	10	5	10	10	4	-	-	-	58	-	-	-	73
Geophysics, solid earth.	-	-	-	-	2	1	0	5	8	6	5	11	19
Geomorph & glacial geol.	0	0	1	4	0	0	1	0	6	0	0	0	7
Hydrology & water res ..	1	6	1	1	0	0	3	1	16	1	0	1	22
Oceanography	3	5	7	5	5	5	0	2	36	3	1	4	49
Marine science, other ..	-	-	-	-	-	0	0	0	0	1	0	1	1
Meteorology	11	7	8	3	4	0	0	0	44	0	0	0	57
Atmospheric phys & chem.	-	-	-	-	1	0	3	1	5	2	0	2	7
Atmospheric dynamics ...	-	-	-	-	0	1	1	5	7	2	1	3	10
Atmospheric sci, other .	-	-	-	-	3	3	5	2	13	3	0	3	16
Environ science, general	0	2	1	2	2	1	1	3	12	1	1	2	14
Environ science, other .	3	1	0	2	0	1	2	2	11	2	1	3	14
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	12
Applied geology	3	2	3	1	1	0	1	1	14	0	1	1	16
Fuel technology	2	4	2	2	1	0	0	1	20	-	-	-	25
Earth science, general .	1	4	4	2	3	1	2	2	21	2	2	4	31
Earth science, other ...	4	3	2	1	0	2	0	2	14	2	1	3	24
Engineering	622	557	515	418	390	326	325	322	4435	299	298	597	6528
Aeronaut & astronautical	32	25	17	16	8	10	14	15	186	11	6	17	287
Agricultural	5	4	6	4	3	1	3	4	39	1	3	4	62
Biomedical	6	8	11	5	6	4	7	5	62	7	9	16	80
Chemical	71	78	76	65	49	45	46	46	620	40	43	83	889
Civil	85	71	57	42	50	44	27	21	543	24	34	58	797
Ceramic	3	2	1	3	6	7	3	2	33	3	5	8	60
Computer	-	-	-	9	13	18	13	12	65	9	17	26	91
Electrical	113	91	88	60	74	64	52	66	784	43	50	93	1164
Electronics	26	16	17	12	8	11	7	12	143	9	6	15	260
Industrial	20	8	10	10	4	9	5	9	96	10	7	17	141
Nuclear	14	17	9	10	15	10	17	9	118	14	14	28	155
Engineering mechanics ..	66	45	42	33	18	15	10	11	323	10	7	17	512
Engineering physics	9	5	6	1	2	0	1	3	36	2	3	5	97
Mechanical	72	67	66	52	44	26	44	39	502	49	37	86	752
Metallurgy	28	19	18	25	15	12	18	10	197	14	13	27	299
Systems design	-	-	-	7	10	6	7	11	41	4	7	11	52
Operations research	9	21	18	14	13	8	9	7	100	7	9	16	116
Fuel technology	-	2	3	5	2	4	5	2	23	7	3	10	33
Sanitary & environmental	10	14	16	8	10	4	6	4	79	5	1	6	105
Mining	3	4	1	2	1	0	3	0	23	0	2	2	29
Materials science	24	21	23	20	23	20	17	22	184	19	18	37	224
Engineering, general ...	0	8	7	2	7	1	2	5	45	2	3	5	62
Engineering, other	26	32	23	13	9	7	9	7	193	9	1	10	261

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S., permanent residents

Field of study	Year of doctorate												
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Mathematical sciences	11	8	10	14	12	19	25	37	44	52	232	58	65
Algebra	1	0	0	0	1	1	3	2	5	4	17	5	10
Analysis & funct anal[26]	2	2	1	2	2	2	3	8	6	14	44	10	13
Geometry	0	0	0	0	1	2	0	1	1	0	5	2	6
Logic	0	0	0	0	0	0	0	1	0	0	1	1	0
Number theory	0	0	1	0	0	0	0	1	0	4	6	0	2
Probability & math stat.[27]	3	3	3	5	5	7	9	5	11	3	54	9	6
Topology	1	1	1	0	0	1	1	9	1	1	16	5	3
Topological algebra[28]	0	0	0	0	1	0	1	0	-	-	2	-	-
Computing theory	1	0	0	1	0	1	1	2	2	8	16	8	5
Computer science[13]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[29]	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	3	2	3	4	1	5	6	7	11	7	49	6	9
Mathematics, general	0	0	1	1	1	0	0	0	3	6	12	4	9
Mathematics, other	0	0	0	1	0	0	1	1	2	5	10	8	2
Life sciences	56	45	43	58	77	86	82	122	174	176	919	218	284
Biological sciences	40	39	25	46	60	66	67	100	133	141	717	171	208
Biochemistry	16	12	10	10	21	17	15	23	44	40	208	39	63
Biophysics	1	1	0	0	2	1	6	3	5	6	25	9	6
Biometry, biostatistics	0	0	0	1	0	1	2	3	1	1	9	5	2
Anatomy	1	0	2	1	0	4	3	1	1	7	20	5	8
Cytology[30]	-	-	1	2	2	2	4	0	2	2	15	3	1
Embryology	0	0	0	1	1	1	0	1	0	0	4	0	1
Immunology[31]	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	3	2	1	2	4	1	5	3	5	5	31	5	6
Ecology	0	2	0	2	0	1	1	2	2	0	10	2	0
Hydrobiology[8]	0	0	0	0	0	1	0	1	0	0	2	3	0
Microbiology & bacteriol[32]	6	6	3	5	8	10	4	20	15	19	96	24	22
Animal & plant physiol[33]	2	4	1	-	-	-	-	-	-	-	7	-	-
Animal physiology[33]	0	0	0	4	8	6	7	13	7	10	55	15	18
Plant physiology[33]	0	0	1	5	0	2	5	1	3	6	23	3	4
Nutrition[34]	4	0	0	0	-	-	-	-	-	-	4	-	-
Zoology	2	2	0	2	3	5	5	4	8	6	37	5	9
Genetics	2	5	2	3	3	4	3	6	8	6	42	7	7
Entomology	1	2	1	4	0	2	2	6	11	6	35	7	10
Molecular biology[17]	-	-	-	-	-	-	-	-	-	5	5	7	6
Nutrition/dietetics[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	0	0	0	1	2	2	0	6	2	4	17	4	7
Pharmacology	2	2	2	2	5	5	5	7	14	9	53	10	17
Biological sci, general	0	0	0	0	0	0	0	0	1	2	3	6	10
Biological sci, other	0	1	1	1	1	1	0	0	4	7	16	12	11
Agricultural sciences	16	6	18	12	17	20	15	22	41	35	202	47	76
Agronomy	9	2	4	3	4	5	3	6	8	11	55	12	14
Animal husbandry	2	2	5	3	4	2	3	5	8	3	37	6	4
Food sci & technology	-	-	-	-	-	-	-	-	-	2	2	7	15
Fish & wildlife	0	0	0	0	0	0	0	1	0	2	3	1	3
Forestry	0	1	1	3	3	1	0	1	7	2	19	5	3
Horticulture	1	0	3	3	4	5	5	2	2	2	27	4	9
Soils & soil science[35]	-	-	-	-	-	-	-	-	0	3	3	2	6
Animal sci & nutrition[36]	-	-	-	-	-	-	-	-	-	0	0	0	0
Phytopathology	2	1	4	0	2	4	3	4	6	5	31	4	11
Agriculture, general	1	0	0	0	0	1	0	0	1	2	5	0	0
Agriculture, other	1	0	1	0	0	2	1	3	9	3	20	6	11
Social sciences	33	29	25	48	50	73	68	113	99	132	670	176	192
Anthropology	1	2	2	1	0	2	7	6	4	7	32	8	12
Archeology	0	0	0	0	1	1	0	0	0	0	2	0	1
Hist & phil of science[37]	-	-	-	-	-	-	-	-	-	-	-	-	0
Linguistics	1	2	3	3	6	7	6	8	6	10	52	12	12
Sociology	3	7	2	6	9	13	9	13	12	20	94	38	29
Economics	20	13	12	20	22	27	31	56	40	46	287	62	57
Econometrics	2	1	1	0	0	4	2	3	5	2	20	3	3
Agricultural economics[17]	-	-	-	-	-	-	-	-	-	7	7	4	12
Statistics[38]	-	-	-	-	-	-	-	0	1	7	8	12	14
Geography	4	1	1	6	4	4	1	5	9	10	45	9	14
Pol sci, public admin[39]	2	3	4	12	8	15	12	22	22	23	123	28	38
Political science[39]	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	14	10	13	14	28	14	25	21	32	29	200	41	50
Clinical	4	5	9	6	13	6	9	6	8	6	72	9	11
Counseling & guidance	2	0	0	0	0	0	0	2	2	0	6	2	5
Developmental & gerontol	0	0	0	0	0	2	0	0	4	2	8	2	3
Educational	0	1	0	1	0	1	2	2	0	1	8	4	5
School	0	0	0	0	0	0	0	0	0	0	0	0	0
Exper, compar, physiol[40]	5	1	1	0	0	0	0	0	-	-	7	-	-
Experimental[40]	-	0	0	4	5	2	5	5	7	6	34	7	4
Comparative[40]	-	0	0	0	0	0	0	0	0	2	2	1	2
Physiological[40]	-	0	0	1	2	1	3	3	3	1	14	3	1
Industrial & personnel	0	0	0	0	2	0	1	1	2	0	6	2	1
Personality	0	1	1	0	0	0	0	0	0	0	2	0	3
Psychometrics	0	1	0	0	3	1	2	1	0	1	9	1	2
Social	3	1	2	2	2	1	2	1	3	3	20	6	6
Psychology, general	0	0	0	0	1	0	1	0	2	5	9	2	5
Psychology, other	0	0	0	0	0	0	0	0	1	2	3	2	2
Total, non-sci & engineering[42]	60	56	78	75	101	124	185	197	281	297	1454	357	442
Total, all fields	279	256	274	354	468	560	636	876	1046	1235	5984	1576	1907

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S., permanent residents

Field of study	Year of doctorate												
	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Mathematical sciences	65	81	71	75	55	55	52	63	640	75	63	138	1010
Algebra	5	9	9	6	5	3	2	6	60	3	5	8	85
Analysis & funct anal ..	8	13	14	11	2	5	7	10	93	6	4	10	147
Geometry	2	3	4	3	0	1	0	0	21	4	2	6	32
Logic	0	1	0	0	1	0	0	0	3	3	0	3	7
Number theory	1	0	0	2	1	0	1	0	7	1	1	2	15
Probability & math stat.	13	17	10	14	12	15	13	16	125	23	11	34	213
Topology	6	3	4	4	5	1	2	3	36	3	1	4	56
Topological algebra	-	-	-	-	-	-	-	-	-	-	-	-	2
Computing theory	8	19	11	17	8	6	3	1	86	1	2	3	105
Computer science	-	-	-	-	-	1	5	12	18	13	20	33	51
Operations research	0	0	0	3	5	7	4	2	21	4	4	8	29
Applied mathematics	11	11	11	7	4	12	5	7	83	9	7	16	148
Mathematics, general ...	7	4	5	7	6	3	6	6	57	4	4	8	77
Mathematics, other	4	1	3	1	6	1	4	0	30	1	2	3	43
Life sciences	307	319	273	260	199	189	185	161	2395	186	158	344	3658
Biological sciences	222	244	208	190	162	162	142	132	1841	151	124	275	2833
Biochemistry	52	65	44	50	42	37	36	39	467	19	31	50	725
Biophysics	5	8	6	4	12	8	10	7	75	10	6	16	116
Biometry, biostatistics.	4	4	3	0	2	3	3	5	31	3	0	3	43
Anatomy	7	4	7	5	5	4	2	6	53	4	3	7	80
Cytology	2	3	2	3	3	0	0	2	19	4	1	5	39
Embryology	0	1	0	0	0	0	0	0	2	2	0	2	8
Immunology	1	1	9	4	5	5	6	9	40	9	4	13	53
Botany	10	4	8	2	5	1	3	1	45	3	2	5	81
Ecology	2	3	2	3	4	2	1	3	22	4	2	6	38
Hydrobiology	0	0	1	0	0	0	0	0	4	-	-	-	6
Microbiology & bacteriol	21	29	26	28	19	17	13	13	212	20	13	33	341
Animal & plant physiol .	-	-	-	-	-	-	-	-	-	-	-	-	7
Animal physiology	22	18	17	18	8	12	8	9	145	6	9	15	215
Plant physiology	4	7	2	6	5	2	3	1	37	4	3	7	67
Nutrition	-	-	-	-	-	-	-	-	-	-	-	-	4
Zoology	10	12	2	3	1	8	3	5	58	3	2	5	100
Genetics	16	10	10	5	3	8	5	3	74	6	3	9	125
Entomology	12	12	9	3	3	3	9	5	73	7	7	14	122
Molecular biology	10	6	12	9	8	7	9	3	77	7	7	14	96
Nutrition/dietetics	-	-	-	-	10	8	6	9	33	4	5	9	42
Parasitology	-	0	3	1	1	2	0	0	7	1	0	1	8
Pathology	11	13	8	7	7	8	3	2	70	8	2	10	97
Pharmacology	10	19	15	12	10	14	9	1	117	17	11	28	198
Biological sci, general.	7	14	6	8	4	9	7	5	76	6	8	14	93
Biological sci, other ..	16	11	16	19	5	4	6	4	104	4	5	9	129
Agricultural sciences	85	75	65	70	37	27	43	29	554	35	34	69	825
Agronomy	10	10	3	7	2	4	5	2	69	5	4	9	133
Animal husbandry	4	1	2	0	0	0	0	1	18	1	1	2	57
Food sci & technology ..	16	24	16	26	13	7	17	8	149	12	6	18	169
Fish & wildlife	0	3	2	6	0	2	0	0	17	1	0	1	21
Forestry	7	4	4	3	1	4	2	2	35	0	3	3	57
Horticulture	14	2	6	3	1	0	4	2	45	1	5	6	78
Soils & soil science ...	5	9	5	8	5	1	3	3	47	4	4	8	58
Animal sci & nutrition .	6	6	14	11	8	5	4	5	59	3	5	8	67
Phytopathology	9	9	6	4	5	0	1	4	53	2	3	5	89
Agriculture, general ...	0	0	1	0	1	0	0	0	2	0	0	0	7
Agriculture, other	14	7	6	2	1	4	7	2	60	6	3	9	89
Social sciences	199	204	172	164	144	149	149	137	1686	148	142	290	2646
Anthropology	10	10	11	8	12	13	14	16	114	14	10	24	170
Archeology	1	0	1	1	0	0	1	0	5	1	2	3	10
Hist & phil of science .	0	2	3	1	3	0	2	0	11	0	0	0	11
Linguistics	14	16	13	14	8	12	9	12	122	13	3	16	190
Sociology	34	30	30	27	35	29	25	29	306	34	27	61	461
Economics	57	77	53	46	45	43	52	50	542	51	54	105	934
Econometrics	7	1	2	5	3	2	1	2	29	3	5	8	57
Agricultural economics .	8	16	8	12	7	6	3	7	83	7	12	19	109
Statistics	15	11	3	3	0	0	5	3	66	4	2	6	80
Geography	11	9	6	10	8	12	9	4	92	2	2	4	141
Pol sci, public admin ..	42	32	42	37	1	-	-	-	220	-	-	-	343
Political science	-	-	0	0	22	32	28	14	96	19	25	44	140
Psychology	51	50	47	55	41	47	54	45	481	50	47	97	778
Clinical	4	10	10	16	6	10	13	8	97	10	8	18	187
Counseling & guidance ..	3	3	2	2	3	1	3	5	29	2	9	11	46
Developmental & gerontol	6	4	5	4	2	6	2	4	38	4	3	7	53
Educational	5	5	5	0	4	2	5	4	39	5	4	9	56
School	2	2	3	1	4	1	2	1	16	2	0	2	18
Exper, compar, physiol .	-	-	-	-	-	-	-	-	-	-	-	-	7
Experimental	6	9	6	6	3	6	7	5	59	9	4	13	106
Comparative	0	0	0	0	1	1	0	0	5	0	0	0	7
Physiological	4	2	2	1	3	1	3	1	21	3	2	5	40
Human engineering	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial & personnel .	2	0	2	3	2	3	3	3	21	0	2	2	29
Personality	3	1	0	1	0	0	1	0	9	0	0	0	11
Psychometrics	2	3	0	1	1	1	1	0	12	1	0	1	22
Social	4	4	5	9	5	4	4	3	50	2	4	6	76
Psychology, general	5	5	5	7	6	7	3	6	51	6	7	13	73
Psychology, other	5	2	2	4	1	4	7	5	34	6	4	10	47
Total, non-sci & engineering .	470	435	444	468	416	389	374	393	4188	356	403	759	6401
Total, all fields	2094	1998	1826	1714	1494	1368	1344	1320	16641	1291	1272	2563	25188

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S., temporary residents

Field of study	Year of doctorate												
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, science & engineering .	736	846	1021	1014	1182	1425	1596	1670	1805	1870	13165	2019	2086
Physical sciences	143	187	207	227	231	280	306	357	332	335	2605	363	363
Physics and astronomy	48	68	97	96	91	128	129	152	154	157	1120	187	190
Astronomy & astrophysics[1]	2	1	2	3	6	7	10	4	14	0	49	-	-
Astronomy[1]	-	-	-	-	-	-	-	-	-	3	3	2	3
Astrophysics[1]	-	-	-	-	-	-	-	-	-	6	6	10	4
Atomic & molecular	2	4	7	4	10	4	12	9	9	11	72	13	15
Electromagnetism[2]	1	1	1	2	3	3	3	5	3	1	23	1	2
Mechanics[3]	0	1	0	1	1	1	0	1	1	1	7	1	0
Acoustics	0	1	1	2	0	1	2	0	1	0	8	0	2
Fluids	0	1	3	2	2	3	5	12	7	2	37	2	1
Plasma[4]	-	-	-	-	-	-	-	0	0	8	8	9	12
Optics	1	1	1	3	0	2	1	1	2	0	12	2	1
Thermal[5]	1	0	0	1	1	0	4	2	0	3	12	2	1
Elementary particles ...	1	9	22	28	16	23	27	35	36	31	228	47	40
Nuclear[6]	1	1	-	-	-	-	-	-	-	-	2	-	-
Nuclear structure	14	16	29	26	20	26	19	28	16	17	211	21	20
Solid state	11	12	15	15	17	43	33	43	40	31	260	35	45
Theoretical physics[7]	11	17	12	-	-	-	-	-	-	-	40	-	-
Physics, general	1	0	0	2	5	4	1	3	7	36	59	24	22
Physics, other	2	3	4	7	10	11	12	9	18	7	83	18	22
Chemistry	95	119	110	131	140	152	177	205	178	178	1485	176	173
Analytical	7	6	9	6	5	7	6	11	10	6	73	10	5
Inorganic	7	8	7	5	6	13	15	10	14	19	104	13	9
Organic	28	43	42	39	46	54	68	66	49	48	483	53	62
Nuclear chemistry	2	2	3	4	5	2	3	4	6	5	36	3	4
Physical	24	32	32	43	35	44	41	59	59	44	413	45	46
Theoretical chemistry ..	0	4	1	2	8	4	5	6	5	8	43	6	5
Agricultural and food[8] ..	15	13	9	14	17	11	16	21	8	10	134	13	9
Pharmaceutical	8	7	6	12	11	14	16	18	10	11	113	12	8
Polymer[9]	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	4	1	0	5	3	1	1	4	11	18	48	14	14
Chemistry, other	0	3	1	1	4	2	6	6	6	9	38	7	11
Earth, env & marine sciences	35	34	23	51	38	46	52	59	66	78	482	71	45
Mineral, petrol, geochem[10]	9	12	8	17	6	17	10	20	15	0	114	-	-
Mineralogy, petrology[10] ..	-	-	-	-	-	-	-	-	-	8	8	7	5
Geochemistry[10]	-	-	-	-	-	-	-	-	0	8	8	8	6
Stratigraphy, sediment .	7	7	5	3	6	4	5	10	7	5	59	8	3
Paleontology	1	2	3	3	2	5	8	1	4	1	30	1	1
Structural geology	0	0	0	0	2	2	3	2	1	2	12	0	1
Geophysics	7	8	2	3	4	3	8	9	7	11	62	15	5
Geophysics, solid earth.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Geomorph & glacial geol.	2	0	1	1	2	0	0	2	1	2	11	2	1
Hydrology & water res[12] ..	0	1	0	1	1	0	3	4	1	4	15	4	5
Oceanography	0	1	0	3	1	2	3	2	6	5	23	3	3
Marine science, other[13] ..	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology[14]	6	1	1	7	6	3	3	4	9	8	48	7	2
Atmospheric phys & chem.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics[11] ...	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric sci, other .	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other .	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]	3	2	3	8	5	8	7	3	10	0	49	-	-
Applied geology[15]	-	-	-	-	-	-	-	-	0	9	9	3	0
Fuel technology[15]	-	-	-	-	-	-	-	-	3	5	8	3	4
Earth science, general .	-	-	0	4	2	0	0	1	2	5	14	5	4
Earth science, other ...	-	-	0	1	1	2	2	1	0	5	12	5	5
Engineering	129	154	218	215	247	319	385	409	436	460	2972	471	518
Aeronaut & astronautical[16]	4	9	9	10	11	13	22	16	23	22	139	23	27
Agricultural	3	3	4	3	6	5	3	9	8	7	51	14	12
Biomedical[17]	-	-	-	-	-	-	-	-	-	1	1	1	7
Chemical	35	23	43	30	28	50	46	43	60	58	416	52	59
Civil	14	31	45	43	50	67	80	74	78	89	571	86	104
Ceramic	0	1	2	0	2	1	2	3	1	3	15	2	2
Computer[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	23	33	37	45	46	56	81	79	80	79	559	81	84
Electronics	6	8	8	9	11	11	18	10	13	13	107	12	13
Industrial	1	3	4	2	0	2	4	15	13	8	52	29	13
Nuclear[19]	-	-	-	-	-	-	-	-	-	20	20	18	14
Engineering mechanics ..	14	10	21	18	21	35	34	36	32	33	254	31	32
Engineering physics[19]	6	2	5	10	13	11	18	21	18	8	112	3	4
Mechanical	16	9	17	24	22	36	28	48	50	46	296	45	48
Metallurgy[20]	2	15	14	12	21	20	28	35	20	41	208	28	40
Systems design[18]	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[21]	-	-	-	-	-	-	-	-	-	-	-	-	0
Fuel technology[22]	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	3	5	3	4	5	6	11	2	13	11	63	8	5
Textile[24]	0	0	0	0	0	0	0	0	1	-	1	-	-
Mining[25]	-	-	-	-	-	-	-	-	-	1	1	4	3
Materials science[17]	-	-	-	-	-	-	-	-	-	0	0	4	9
Engineering, general ...	0	0	0	0	0	0	0	4	4	8	16	5	2
Engineering, other	2	2	6	5	11	6	10	14	22	12	90	25	40

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S., temporary residents

Field of study	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
	Year of doctorate												
Total, science & engineering	2169	2427	2642	2742	2675	2602	2506	2606	24474	2644	2886	5530	43169
Physical sciences	387	437	413	458	431	406	397	415	4070	426	438	864	7539
Physics and astronomy	209	248	230	244	228	207	181	207	2131	189	200	389	3640
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	49
Astronomy	3	10	6	7	8	2	1	6	48	3	5	8	59
Astrophysics	6	9	6	13	9	8	10	7	82	8	3	11	99
Atomic & molecular	11	15	16	27	17	15	12	6	147	9	11	20	239
Electromagnetism	1	2	1	0	1	0	1	2	11	-	-	-	34
Mechanics	2	1	2	1	1	-	-	-	8	-	-	-	15
Acoustics	1	1	0	1	0	3	1	2	11	2	1	3	22
Fluids	0	4	2	6	1	2	3	0	21	4	5	9	67
Plasma	15	10	7	9	9	10	9	14	104	8	10	18	130
Optics	3	4	5	7	6	4	7	10	49	10	11	21	82
Thermal	5	2	3	1	1	2	3	1	21	0	3	3	36
Elementary particles	39	42	32	21	30	28	27	22	328	26	21	47	603
Nuclear	-	-	-	-	-	-	-	-	-	-	-	-	2
Nuclear structure	25	31	27	27	23	15	16	21	226	16	16	32	469
Solid state	43	55	72	54	53	57	47	48	509	45	56	101	870
Theoretical physics	-	-	-	-	-	-	-	-	-	-	-	-	40
Physics, general	38	47	41	45	51	40	36	46	390	45	48	93	542
Physics, other	17	15	10	25	18	21	8	22	176	13	10	23	282
Chemistry	178	189	183	214	203	199	216	208	1939	237	238	475	3899
Analytical	6	5	11	15	16	8	12	18	106	18	20	38	217
Inorganic	20	12	15	17	13	25	21	13	158	22	18	40	302
Organic	41	63	38	79	57	49	58	65	565	81	62	143	1191
Nuclear chemistry	2	0	4	1	3	3	0	2	22	2	1	3	61
Physical	43	54	45	45	46	40	49	35	448	38	35	73	934
Theoretical chemistry	6	6	6	6	5	8	8	8	64	7	6	13	120
Agricultural and food	5	2	2	2	2	1	3	2	41	-	-	-	175
Pharmaceutical	7	5	2	6	7	8	3	5	63	14	7	21	197
Polymer	-	2	11	7	9	13	12	22	76	17	22	39	115
Chemistry, general	26	31	39	31	35	36	43	27	296	31	56	87	431
Chemistry, other	22	9	10	5	10	8	7	11	100	7	11	18	156
Earth, env & marine sciences	64	73	101	95	96	100	68	71	784	80	85	165	1431
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	114
Mineralogy, petrology	7	8	8	10	2	4	0	1	52	1	3	4	64
Geochemistry	6	6	7	8	7	3	4	7	62	6	1	7	77
Stratigraphy, sediment	0	6	4	2	9	10	3	3	48	2	5	7	114
Paleontology	5	1	1	2	3	0	1	1	16	1	0	1	47
Structural geology	4	3	3	1	1	3	2	5	23	0	0	0	35
Geophysics	12	11	13	21	10	-	-	-	87	-	-	-	149
Geophysics, solid earth	-	-	-	-	9	16	12	10	47	16	12	28	75
Geomorph & glacial geol.	1	1	3	1	1	1	1	0	12	3	1	4	27
Hydrology	3	4	6	0	4	8	9	3	46	5	8	13	74
Oceanography	3	7	6	7	9	12	14	11	75	6	6	12	110
Marine science, other	-	-	-	-	-	0	0	2	2	0	3	3	5
Meteorology	3	6	7	11	5	0	0	0	41	0	0	0	89
Atmospheric phys & chem.	-	-	-	-	2	1	2	1	6	1	1	2	8
Atmospheric dynamics	-	-	-	-	3	6	2	5	16	6	4	10	26
Atmospheric sci, other	-	-	-	-	6	8	1	11	26	14	12	26	52
Environ science, general	0	2	6	6	3	2	0	0	19	2	3	5	24
Environ science, other	4	0	0	2	1	2	1	2	12	1	6	7	19
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	49
Applied geology	7	3	11	7	6	3	1	1	42	5	4	9	60
Fuel technology	0	3	10	6	2	2	2	2	34	-	-	-	42
Earth science, general	3	7	8	5	9	9	7	2	59	7	12	19	92
Earth science, other	6	5	8	6	4	10	6	4	59	4	4	8	79
Engineering	519	622	704	515	813	773	768	815	6818	851	943	1794	11584
Aeronaut & astronautical	22	27	28	28	28	45	39	35	302	34	35	69	510
Agricultural	16	20	21	18	12	15	19	39	186	39	41	80	317
Biomedical	7	5	6	7	6	8	10	7	64	5	6	11	76
Chemical	56	83	106	111	101	97	83	98	846	113	112	225	1487
Civil	85	106	100	107	125	109	110	107	1039	112	135	247	1857
Ceramic	7	3	3	4	6	4	2	4	37	7	8	15	67
Computer	-	-	-	33	38	30	23	29	153	25	24	49	202
Electrical	96	119	115	157	130	117	125	116	1140	117	134	251	1950
Electronics	6	21	10	18	24	24	16	31	175	22	15	37	319
Industrial	18	12	25	18	26	22	11	23	197	28	20	48	297
Nuclear	17	18	24	18	38	23	27	24	221	36	49	85	326
Engineering mechanics	23	29	27	43	36	28	36	32	317	35	30	65	636
Engineering physics	5	4	4	6	0	2	2	4	34	2	7	9	155
Mechanical	54	59	79	79	76	80	85	87	692	95	114	209	1197
Metallurgy	38	32	38	31	42	28	29	34	340	33	50	83	631
Systems design	-	-	-	21	15	22	24	16	98	22	27	49	147
Operations research	11	14	20	29	16	21	26	[illegible]	[illegible]	13	31	44	202
Fuel technology	0	3	5	5	9	9	13	[illegible]	[illegible]	16	13	29	89
Sanitary & environmental	8	13	10	14	18	14	13	8	[illegible]	9	17	26	200
Textile	0	0	0	0	0	0	0	0	0	0	0	0	1
Mining	1	4	0	1	4	1	1	2	21	3	1	4	26
Materials science	12	25	32	28	31	36	36	43	256	52	35	87	343
Engineering, general	4	6	11	11	11	10	11	8	79	9	8	17	112
Engineering, other	33	19	40	28	21	28	27	31	292	24	31	55	437

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Non-U.S., temporary residents

Field of study	Year of doctorate 1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Mathematical sciences	44	44	65	61	80	76	97	92	112	114	785	134	152
Algebra	4	2	11	13	7	9	15	13	12	15	101	14	16
Analysis & funct anal[26]..	8	7	8	9	21	15	18	18	19	28	151	28	27
Geometry	1	2	3	0	5	1	3	4	6	5	30	6	7
Logic	0	0	1	4	4	4	2	2	5	1	23	4	4
Number theory	3	3	4	1	2	0	5	1	5	4	28	3	6
Probability & math stat.[27]	12	17	23	17	21	23	26	21	23	5	188	14	9
Topology	2	2	3	4	7	6	4	8	11	9	56	12	12
Topological algebra[28]...	3	1	3	5	0	5	3	1	-	-	21	-	-
Computing theory	1	1	3	2	2	2	4	5	10	12	42	8	16
Computer science	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[29]....	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	6	6	5	6	9	7	13	17	12	16	97	18	18
Mathematics, general ...	4	1	1	0	2	3	1	2	8	11	33	18	22
Mathematics, other	0	2	0	0	0	1	3	0	1	8	15	9	15
Life sciences	239	265	313	299	385	479	488	480	556	542	4046	560	549
Biological sciences	148	173	201	209	250	307	313	298	360	340	2599	361	312
Biochemistry	28	50	51	40	59	69	72	82	78	84	613	69	66
Biophysics	1	3	3	4	5	3	10	6	10	5	50	5	9
Biometry, biostatistics.	0	2	2	4	7	4	5	2	4	2	32	4	5
Anatomy	0	5	4	8	7	8	2	4	5	8	51	10	9
Cytology[30]...............	-	-	3	3	2	5	5	3	1	2	24	4	3
Embryology	0	0	0	1	2	5	1	0	2	1	12	2	2
Immunology[31].............	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	14	17	25	19	19	28	19	13	28	15	197	19	16
Ecology	2	1	3	4	3	2	5	3	6	7	36	10	5
Hydrobiology[8]...........	1	0	0	1	1	1	2	0	0	0	6	1	1
Microbiology & bacteriol[32]	19	23	20	33	26	40	48	38	39	34	320	44	23
Animal & plant physiol[33].	10	11	8	-	-	-	-	-	-	-	29	-	-
Animal physiology[33]......	1	0	7	11	14	13	20	21	34	21	142	33	24
Plant physiology[33]......	2	0	8	16	13	20	19	18	21	21	138	15	17
Nutrition[34].............	6	0	1	2	-	-	-	-	-	-	9	-	-
Zoology	9	14	12	13	14	24	12	10	23	18	149	19	15
Genetics	20	19	17	24	31	35	32	42	39	27	286	31	34
Entomology	28	17	19	15	31	23	28	32	31	35	259	30	30
Molecular biology[17]......	-	-	-	-	-	-	-	-	-	10	10	7	5
Nutrition/dietetics[11]....	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]...........	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	3	1	7	2	4	8	6	10	10	4	55	8	10
Pharmacology	0	8	7	9	10	15	22	10	18	13	112	19	6
Biological sci, general.	3	0	0	0	0	1	0	1	5	10	20	10	16
Biological sci, other ..	1	2	4	0	2	3	5	3	6	23	49	21	16
Agricultural sciences	91	92	112	90	135	172	175	182	196	202	1447	199	237
Agronomy	30	38	45	28	47	64	57	52	62	62	485	51	57
Animal husbandry[17].......	11	12	19	13	26	37	32	34	33	27	244	19	21
Food sci & technology ..	-	-	-	-	-	-	-	-	-	12	12	6	25
Fish & wildlife	1	0	4	4	5	3	2	0	1	2	22	4	4
Forestry	5	4	6	0	12	3	7	14	13	8	72	11	12
Horticulture	14	10	16	13	15	22	31	22	17	18	178	22	18
Soils & soil science[35]..	-	-	-	-	-	-	-	-	0	16	16	20	27
Animal sci & nutrition[36].	-	-	-	-	-	-	-	-	-	0	0	0	0
Phytopathology	26	26	19	23	20	33	35	32	36	37	287	32	31
Agriculture, general ...	1	0	0	1	1	1	3	0	6	3	16	2	1
Agriculture, other	3	2	3	8	9	9	8	28	25	17	115	32	41
Social sciences	119	140	152	138	164	198	227	237	261	280	1916	362	388
Anthropology	2	6	5	4	10	5	7	7	6	9	61	15	11
Archeology	1	0	0	0	0	0	2	2	2	1	8	0	3
Hist & phil of science[37].	-	-	-	-	-	-	-	-	-	-	-	-	3
Linguistics	5	8	12	9	12	13	16	14	15	17	121	22	30
Sociology	13	13	15	25	10	19	24	34	36	38	227	45	62
Economics	62	71	67	62	90	109	116	116	144	109	946	141	146
Econometrics	4	3	5	5	4	3	10	8	5	7	54	6	4
Agricultural economics[17].	-	-	-	-	-	-	-	-	-	26	26	33	50
Statistics[38]............	-	-	-	-	-	-	-	6	9	17	32	31	21
Geography	10	10	10	6	12	7	12	10	7	19	103	20	21
Pol sci, public admin[39]..	22	29	38	27	26	42	40	40	37	37	338	49	37
Political science[39]......	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	27	22	43	23	37	27	41	36	42	61	359	58	71
Clinical	5	4	11	6	8	4	9	8	6	10	71	5	9
Counseling & guidance ..	1	3	2	0	1	2	0	2	2	8	21	2	5
Developmental & gerontol	1	0	1	3	1	2	3	1	4	3	19	4	4
Educational	2	1	4	1	0	0	0	1	5	3	17	2	1
School	0	0	0	0	1	1	0	1	1	0	4	0	0
Exper, compar, physiol[40].	9	4	5	0	0	0	0	0	-	-	18	-	-
Experimental[40]..........	-	0	4	8	11	6	9	7	5	13	63	11	16
Comparative[40]...........	-	0	4	1	0	2	0	0	0	0	7	1	0
Physiological	-	0	0	1	3	4	4	4	3	0	19	5	7
Industrial & personnel .	1	1	1	1	3	2	0	1	3	5	18	3	6
Personality	1	0	2	1	2	0	1	1	1	3	12	3	1
Psychometrics	0	1	2	0	3	2	4	0	2	0	14	2	1
Social	6	7	6	1	4	2	7	6	5	8	52	17	11
Psychology, general	1	0	1	0	0	0	3	4	4	4	17	2	9
Psychology, other	0	1	0	0	0	0	1	0	1	4	7	1	1
Total, non-sci & engineering[42].	161	204	223	237	281	328	312	378	463	464	3051	553	604
Total, all fields	897	1050	1244	1251	1463	1753	1908	2048	2268	2334	16216	2572	2690

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81

Non-U.S., temporary residents

Field of study	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Mathematical sciences	169	173	224	197	183	170	181	181	1764	182	226	408	2957
Algebra	17	11	18	20	19	12	13	10	150	10	14	24	275
Analysis & funct anal ..	26	32	34	36	25	33	19	22	282	17	30	47	480
Geometry	7	6	8	4	7	7	4	4	60	4	2	6	96
Logic	5	3	1	4	7	4	5	3	40	1	1	2	65
Number theory	3	4	4	6	3	4	1	1	35	6	3	9	72
Probability & math stat.	23	29	33	31	45	31	38	37	290	39	50	89	567
Topology	9	10	11	12	12	13	6	8	105	6	10	16	177
Topological algebra	-	-	-	-	-	-	-	-	-	-	-	-	21
Computing theory	21	25	37	27	16	12	7	3	172	1	3	4	218
Computer science	-	-	-	-	-	3	26	32	61	43	40	83	144
Operations research	-	0	9	15	4	10	8	10	56	12	13	25	81
Applied mathematics	20	24	31	11	23	17	24	29	215	18	27	45	357
Mathematics, general ...	21	24	32	27	21	18	21	22	226	18	24	42	301
Mathematics, other	17	5	6	4	1	6	9	0	72	7	9	16	103
Life sciences	537	548	634	584	557	575	559	562	5665	592	611	1203	10914
Biological sciences	305	314	363	317	313	318	292	297	3192	296	287	583	6374
Biochemistry	46	51	66	57	65	54	66	51	591	53	43	96	1300
Biophysics	14	17	16	9	10	18	5	13	116	8	13	21	187
Biometry, biostatistics.	6	5	12	4	7	10	7	3	63	6	7	13	108
Anatomy	4	3	4	7	1	6	9	5	58	9	4	13	122
Cytology	0	3	0	6	0	1	3	0	20	2	4	6	50
Embryology	2	1	2	2	2	0	0	0	13	0	1	1	26
Immunology	2	2	6	5	12	6	6	3	42	6	6	12	54
Botany	19	15	22	17	17	12	15	15	167	11	12	23	387
Ecology	9	13	12	11	4	11	8	5	88	9	10	19	143
Hydrobiology	1	1	0	0	0	0	0	0	4	-	-	-	10
Microbiology & bacteriol	31	20	35	27	26	22	31	19	278	21	32	53	651
Animal & plant physiol .	-	-	-	-	-	-	-	-	-	-	-	-	29
Animal physiology	24	22	23	19	17	31	19	14	226	16	14	30	398
Plant physiology	14	18	19	14	11	13	6	13	140	4	11	15	293
Nutrition	-	-	-	-	-	-	-	-	-	-	-	-	9
Zoology	15	13	13	16	14	13	6	9	133	10	11	21	303
Genetics	24	25	29	25	30	11	15	17	241	22	15	37	564
Entomology	31	35	32	34	26	33	22	36	309	31	26	57	625
Molecular biology	10	10	11	16	9	13	14	15	110	18	7	25	145
Nutrition/dietetics	-	-	-	-	16	22	17	14	69	9	14	23	92
Parasitology	-	0	3	3	0	2	3	5	16	5	3	8	24
Pathology	8	7	9	5	8	8	4	10	77	10	16	26	158
Pharmacology	13	19	16	8	11	11	12	18	133	15	16	31	276
Biological sci, general.	11	13	13	11	17	11	15	17	134	18	13	31	185
Biological sci, other ..	21	21	20	21	10	10	9	15	164	13	9	22	235
Agricultural sciences	232	234	271	267	244	257	267	265	2473	296	324	620	4540
Agronomy	41	52	58	54	66	50	47	57	533	64	60	124	1142
Animal husbandry	13	5	3	4	3	7	4	4	83	5	4	9	336
Food sci & technology ..	20	28	28	37	25	46	34	35	284	38	49	87	383
Fish & wildlife	1	4	7	5	4	5	8	4	46	13	2	15	93
Forestry	11	16	23	21	22	11	22	22	171	18	21	39	282
Horticulture	29	15	17	22	20	20	23	16	202	27	32	59	439
Soils & soil science ...	39	41	45	30	32	37	40	38	349	32	39	71	436
Animal sci & nutrition .	18	31	39	35	26	27	34	34	244	30	54	84	328
Phytopathology	28	23	25	29	26	25	29	21	269	37	27	64	620
Agriculture, general ...	2	0	4	7	3	6	3	5	33	1	4	5	54
Agriculture, other	30	19	22	23	17	23	23	29	259	31	32	63	437
Social sciences	415	494	482	492	509	505	472	489	4606	442	503	945	7469
Anthropology	8	16	17	23	28	25	32	27	202	17	25	42	305
Archeology	0	1	2	3	2	1	1	4	17	0	0	0	25
Hist & phil of science .	3	1	3	1	4	1	2	2	20	0	4	4	24
Linguistics	24	35	31	33	33	39	40	36	323	39	47	86	530
Sociology	54	60	65	84	68	66	55	61	620	64	69	133	980
Economics	158	183	182	171	194	201	178	197	1751	187	199	386	3083
Econometrics	6	10	6	9	8	11	7	5	72	5	5	10	136
Agricultural economics .	49	57	62	58	59	54	62	69	553	54	64	118	697
Statistics	17	17	13	16	12	17	15	11	170	9	18	27	229
Geography	27	34	26	19	20	23	28	16	234	20	20	40	377
Pol sci, public admin ..	69	80	75	75	6	-	-	-	391	-	-	-	729
Political science	-	-	0	0	75	67	52	61	255	47	52	99	354
Psychology	78	80	84	101	86	73	61	73	765	71	80	151	1275
Clinical	8	15	16	15	8	7	12	7	102	12	13	25	198
Counseling & guidance ..	4	4	6	9	7	6	7	7	57	2	10	12	90
Developmental & gerontol	2	7	5	10	6	5	3	7	53	5	3	8	80
Educational	6	4	2	4	3	7	3	8	40	1	4	5	62
School	0	0	1	1	2	0	0	2	6	1	1	2	12
Exper, compar, physiol .	-	-	-	-	-	-	-	-	-	-	-	-	18
Experimental	11	13	12	12	13	16	9	10	123	10	9	19	205
Comparative	0	1	0	1	2	0	0	0	5	0	0	0	12
Physiological	5	5	7	8	3	6	6	3	55	2	3	5	79
Human engineering	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial & personnel .	3	5	6	4	8	3	2	2	42	2	2	4	64
Personality	1	1	2	0	5	1	1	1	16	1	1	2	30
Psychometrics	5	0	3	2	2	2	1	2	20	1	3	4	38
Social	20	14	16	19	18	7	8	7	137	6	7	13	202
Psychology, general	4	7	5	10	6	8	3	8	62	7	10	17	96
Psychology, other	9	4	3	6	3	5	6	9	47	21	14	35	89
Total, non-sci & engineering .	662	747	717	794	854	846	915	979	7671	1000	1038	2038	12760
Total, all fields	2831	3174	3359	3536	3529	3448	3421	3585	32145	3644	3924	7568	55929

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Unknown citizenship

Field of study	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
	Year of doctorate												
Total, science & engineering .	47	91	88	132	181	155	296	249	246	323	1808	179	274
Physical sciences	11	28	21	45	44	33	79	61	64	82	468	56	72
Physics and astronomy	6	14	14	19	32	19	41	41	33	46	265	32	45
Astronomy & astrophysics[1]	0	0	0	0	2	0	1	3	1	0	7	-	-
Astronomy[1]...............	-	-	-	-	-	-	-	-	-	0	0	4	2
Astrophysics[1]............	-	-	-	-	-	-	-	-	-	0	0	0	0
Atomic & molecular	2	2	0	0	0	1	2	3	0	2	12	0	0
Electromagnetism[2].......	0	1	1	0	0	0	2	1	0	0	5	0	0
Mechanics[3]..............	0	1	0	0	0	0	0	0	0	0	1	0	0
Fluids	0	0	0	0	0	0	0	0	0	0	0	0	0
Plasma[4].................	-	-	-	-	-	-	-	0	0	0	0	0	0
Optics	1	0	0	0	0	0	0	0	0	0	1	0	1
Thermal[5]................	0	1	0	0	0	0	1	1	0	0	3	0	0
Elementary particles ...	0	0	1	2	1	6	3	4	0	0	17	1	0
Nuclear structure	0	2	1	4	0	0	3	2	1	0	13	0	1
Solid state	0	3	0	1	1	1	3	0	0	0	9	1	3
Physics, general	3	4	11	9	24	11	20	21	30	39	172	19	27
Physics, other	0	0	0	3	4	0	6	6	1	5	25	7	11
Chemistry	5	14	7	26	12	14	38	20	31	36	203	24	27
Analytical	1	0	1	0	0	0	0	2	0	0	4	0	0
Inorganic	0	0	0	0	0	1	2	0	1	0	4	2	1
Organic	0	0	0	1	1	1	4	4	0	0	11	6	1
Nuclear chemistry	0	2	1	0	1	0	1	0	0	0	5	0	0
Physical	0	6	1	1	2	4	9	2	2	2	29	0	3
Theoretical chemistry ..	0	0	0	0	0	1	2	0	0	0	3	0	0
Agricultural and food[8]..	0	0	0	0	1	0	3	0	0	0	4	1	0
Pharmaceutical	0	0	0	0	0	1	4	1	1	0	7	0	1
Polymer[9]................	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	4	6	4	24	6	6	12	11	27	34	134	14	20
Chemistry, other	0	0	0	0	1	0	1	0	0	0	2	1	1
Earth, env & marine sciences	2	0	2	5	9	3	8	12	9	11	61	6	1
Mineral, petrol, geochem[10]	0	0	0	0	1	0	0	1	0	0	2	-	-
Mineralogy, petrology[10]..	-	-	-	-	-	-	-	-	-	0	0	0	0
Geochemistry[10]...........	-	-	-	-	-	-	-	-	0	0	0	0	0
Stratigraphy, sediment .	0	0	0	0	0	0	0	0	0	0	0	1	0
Paleontology	0	0	0	2	0	0	0	1	0	0	3	0	0
Structural geology	2	0	0	0	0	0	0	0	0	0	2	1	0
Geophysics	0	0	0	0	1	1	1	0	0	1	4	1	0
Geophysics, solid earth.[11]	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology & water res[12]..	0	0	0	0	0	0	0	0	1	0	1	0	0
Oceanography	0	0	0	0	0	0	2	1	0	1	4	0	0
Meteorology[14]...........	0	0	0	1	1	1	1	0	0	0	4	0	0
Atmospheric sci, other[11].	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, general	-	-	-	-	-	-	-	-	-	-	-	-	-
Environ science, other .	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied geology[15]........	0	0	0	0	0	0	1	4	3	0	8	-	-
Applied geology[15]........	-	-	-	-	-	-	-	-	0	0	0	0	0
Fuel technology[15]........	-	-	-	-	-	-	-	-	0	0	1	1	0
Earth science, general .	-	-	2	0	6	1	3	4	4	8	28	2	1
Earth science, other ...	-	-	0	2	0	0	0	0	1	1	4	0	0
Engineering	4	6	8	15	20	41	82	40	41	69	326	19	32
Aeronaut & astronautical[16]	0	0	0	0	1	1	3	1	0	4	10	0	0
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0
Biomedical[17]............	-	-	-	-	-	-	-	-	-	0	0	0	1
Chemical	3	0	0	1	4	2	13	2	3	2	30	1	4
Civil	0	1	4	4	5	6	7	6	9	9	51	1	3
Ceramic	0	0	0	0	0	0	0	0	0	0	0	0	0
Computer[18]..............	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	1	0	2	6	3	11	19	15	7	13	77	4	9
Electronics	0	1	0	0	1	0	0	1	0	1	4	0	2
Industrial	0	1	0	0	0	3	1	2	1	1	9	0	0
Nuclear[19]...............	-	-	-	-	-	-	-	-	-	8	8	1	1
Engineering mechanics ..	0	0	0	0	0	0	2	0	1	4	7	1	1
Engineering physics	0	0	0	0	1	2	2	1	0	0	6	0	0
Mechanical	0	0	1	3	2	5	16	2	4	16	49	1	0
Metallurgy[20]............	0	1	0	1	3	10	15	6	2	2	40	3	3
Systems design[18]........	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations research[21]....	-	-	-	-	-	-	-	-	-	-	-	-	0
Fuel technology[22]........	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanitary & environmental[23]	0	0	0	0	0	0	0	1	0	0	1	1	0
Mining[25]................	-	-	-	-	-	-	-	-	-	0	0	0	1
Materials science[17]......	-	-	-	-	-	-	-	-	-	0	0	0	0
Engineering, general ...	0	1	1	0	0	0	2	1	10	4	19	5	3
Engineering, other	0	1	0	0	0	1	2	2	4	5	15	1	4

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Unknown citizenship

Field of study	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
	Year of doctorate												
Total, science & engineering .	308	328	831	355	338	429	486	455	3983	443	596	1039	6830
Physical sciences	55	60	127	65	38	53	53	54	633	60	94	154	1255
Physics and astronomy	22	27	55	22	22	24	18	31	298	28	47	75	638
Astronomy & astrophysics	-	-	-	-	-	-	-	-	-	-	-	-	7
Astronomy	1	0	0	1	2	0	0	0	10	1	1	2	12
Astrophysics	0	0	2	0	0	1	0	1	4	0	0	0	4
Atomic & molecular	0	0	0	1	0	1	0	0	2	0	1	1	15
Electromagnetism	0	0	0	0	0	0	0	0	0	-	-	-	5
Mechanics	0	0	0	0	0	-	-	-	-	-	-	-	1
Fluids	0	0	1	0	0	0	0	0	1	1	0	1	2
Plasma	0	0	2	0	0	0	0	0	2	0	0	0	2
Optics	0	0	0	0	0	0	0	0	1	0	2	2	4
Thermal	0	0	0	0	0	0	0	0	0	0	0	0	3
Elementary particles ...	0	0	0	1	0	2	0	0	4	0	0	0	21
Nuclear structure	0	0	0	0	0	0	0	0	1	0	0	0	14
Solid state	1	1	1	1	1	0	0	0	9	1	1	2	20
Physics, general	18	22	45	16	19	18	18	29	231	25	41	66	469
Physics, other	2	4	4	2	0	2	0	1	33	0	1	1	59
Chemistry	33	33	72	43	16	29	35	23	335	32	47	79	617
Analytical	0	0	0	0	0	0	2	0	2	0	0	0	6
Inorganic	0	1	0	0	0	1	1	0	6	0	2	2	12
Organic	3	2	1	2	2	0	3	0	20	2	1	3	34
Nuclear chemistry	0	0	0	0	0	0	0	0	0	0	0	0	5
Physical	0	3	2	1	1	5	1	2	18	0	1	1	48
Theoretical chemistry ..	0	0	0	0	0	0	0	0	0	0	0	0	3
Agricultural and food ..	0	0	0	1	1	0	1	0	4	-	-	-	5
Pharmaceutical	0	0	3	1	0	1	3	1	10	2	1	3	20
Polymer	-	0	1	0	0	0	0	0	1	0	0	0	1
Chemistry, general	28	27	65	37	11	21	24	19	266	28	41	69	469
Chemistry, other	2	0	0	1	1	1	0	1	8	0	1	1	11
Earth, env & marine sciences	9	7	24	9	9	13	15	9	102	10	11	21	184
Mineral, petrol, geochem	-	-	-	-	-	-	-	-	-	-	-	-	2
Mineralogy, petrology ..	0	0	1	2	0	1	0	0	4	0	0	0	4
Geochemistry	1	1	1	1	0	1	0	0	5	1	0	1	6
Stratigraphy, sediment .	0	0	0	0	0	0	0	0	1	0	0	0	1
Paleontology	0	0	1	0	0	0	1	1	3	0	0	0	6
Structural geology	0	0	0	0	0	0	0	0	1	1	0	1	4
Geophysics	0	2	2	1	1	-	-	-	7	-	-	-	11
Geophysics, solid earth.	0	0	0	0	0	1	2	1	4	3	2	5	9
Hydrology & water res ..	0	0	1	1	0	0	0	0	2	0	1	1	4
Oceanography	1	1	1	1	2	1	0	1	8	2	1	3	15
Meteorology	1	0	0	1	0	-	-	-	2	-	-	-	6
Atmospheric sci, other .	-	-	-	-	1	3	3	0	7	0	0	0	7
Environ science, general	0	0	0	0	0	1	1	0	2	0	0	0	2
Environ science, other .	1	0	0	0	2	1	2	2	8	0	0	0	8
Applied geology	-	-	-	-	-	-	-	-	-	-	-	-	8
Applied geology	0	0	0	0	0	0	0	1	1	0	1	1	2
Fuel technology	0	0	0	0	0	2	0	0	3	-	-	-	4
Earth science, general .	2	3	17	2	2	1	4	3	37	3	6	9	74
Earth science, other ...	3	0	0	0	1	1	2	0	7	0	0	0	11
Engineering	32	43	176	53	74	72	69	60	630	74	118	192	1148
Aeronaut & astronautical	2	2	2	1	2	2	2	1	14	3	6	9	33
Agricultural	1	0	4	0	1	1	0	0	7	1	0	1	8
Biomedical	0	0	0	1	2	1	2	0	7	2	0	2	9
Chemical	3	8	9	4	11	4	5	4	53	8	13	21	104
Civil	1	4	37	9	15	3	8	9	90	6	13	19	160
Ceramic	0	0	3	0	0	1	0	2	6	0	0	0	6
Computer	-	-	-	0	3	0	0	1	4	0	1	1	5
Electrical	7	10	53	9	15	21	19	13	160	17	26	43	280
Electronics	0	0	0	0	1	0	0	0	3	0	1	1	8
Industrial	0	1	6	2	1	3	0	5	18	5	4	9	36
Nuclear	2	0	3	2	3	5	2	2	21	5	6	11	40
Engineering mechanics ..	1	1	3	0	0	1	4	2	14	4	3	7	28
Engineering physics	0	1	0	0	0	0	0	0	1	2	0	2	9
Mechanical	4	3	11	6	2	12	4	3	46	7	12	19	114
Metallurgy	0	3	5	0	1	1	2	1	19	2	3	5	64
Systems design	-	-	-	0	0	2	1	3	6	0	2	2	8
Operations research	1	2	1	0	0	3	1	1	9	0	0	0	9
Fuel technology	-	1	6	2	0	0	0	2	11	0	2	2	13
Sanitary & environmental	0	0	1	0	1	0	2	0	5	0	1	1	7
Textile	0	0	0	0	0	0	0	0	0	0	0	0	0
Mining	0	0	0	1	0	0	0	0	2	0	1	1	3
Materials science	0	2	7	8	7	6	1	2	33	4	5	9	42
Engineering, general ...	5	3	15	6	4	1	9	5	56	7	14	21	96
Engineering, other	5	2	10	2	5	5	7	4	45	1	5	6	66

See footnotes at end of table.

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Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Unknown citizenship

Field of study	Year of doctorate 1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Mathematical sciences	3	9	4	10	10	15	16	19	18	19	123	15	12
Algebra	0	0	0	0	0	0	0	1	0	0	1	0	0
Analysis & funct anal[26]..	0	1	0	1	1	0	1	0	0	0	4	1	0
Geometry	0	0	0	0	0	0	0	0	1	0	1	0	0
Logic	0	0	0	0	0	0	0	1	0	1	2	0	0
Probability & math stat.[27]	0	1	1	0	2	3	2	2	1	0	12	2	0
Topology	0	0	0	1	0	0	0	0	0	0	1	0	0
Computing theory	0	0	0	0	0	0	0	3	1	0	4	0	0
Computer science[13].......	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research[28]....	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	1	6	0	0	0	1	2	1	1	4	16	6	1
Mathematics, general ...	2	1	3	8	7	9	10	10	13	14	77	5	10
Mathematics, other	0	0	0	0	0	2	1	1	1	0	5	1	1
Life sciences	11	18	15	16	35	27	41	39	40	45	287	28	81
Biological sciences	10	16	15	12	33	20	30	36	31	40	243	25	78
Biochemistry	4	2	1	1	6	5	10	7	5	5	46	5	12
Biophysics	0	0	0	0	1	0	0	3	1	4	9	0	5
Biometry, biostatistics.	0	0	0	0	0	0	0	0	0	0	0	0	1
Anatomy	0	0	1	0	0	0	1	0	0	0	2	3	4
Cytology[30]...............	-	-	0	1	0	0	0	0	0	0	1	0	1
Embryology	0	0	0	1	0	1	1	0	0	0	3	0	0
Immunology[31].............	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany	0	4	2	1	5	2	2	3	2	3	24	0	0
Ecology	0	0	0	0	0	0	0	0	0	0	0	0	0
Microbiology & bacteriol[32]	0	1	1	2	5	0	1	2	4	1	17	1	9
Animal & plant physiol[33].	3	0	1	-	-	-	-	-	-	-	4	-	-
Animal physiology[33]......	0	2	2	1	1	2	4	3	0	3	18	5	4
Plant physiology[33].......	0	0	0	0	0	0	0	1	0	0	1	0	0
Zoology	1	3	2	2	9	3	2	5	0	1	28	0	2
Genetics	0	2	1	0	1	0	1	1	1	3	10	2	0
Entomology	1	0	0	2	1	4	0	3	0	2	13	0	1
Molecular biology[17]......	-	-	-	-	-	0	0	0	0	1	1	0	0
Nutrition/dietetics[11]....	-	-	-	-	-	-	-	-	-	-	-	-	-
Parasitology[9]............	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	0	1	0	0	0	0	0	0	0	0	1	0	5
Pharmacology	1	0	2	1	1	3	1	1	2	1	13	2	4
Biological sci, general.	0	1	2	0	0	0	6	5	14	14	42	4	15
Biological sci, other ..	0	0	0	0	3	0	1	2	2	2	10	3	15
Agricultural sciences	1	2	0	4	2	7	11	3	9	5	44	3	3
Agronomy	0	0	0	1	0	2	6	0	0	1	10	0	0
Animal husbandry[17].......	0	0	0	2	0	2	2	3	0	1	10	2	1
Food sci & technology ..	-	-	-	-	-	-	-	-	-	0	0	0	0
Fish & wildlife	1	0	0	0	0	0	0	0	0	0	1	0	0
Forestry	0	0	0	0	0	1	0	0	1	0	2	1	0
Horticulture	0	2	0	0	0	1	0	0	0	1	4	0	0
Soils & soil science[35]..	-	-	-	-	-	-	-	-	3	1	4	0	0
Animal sci & nutrition[36].	-	-	-	-	-	-	-	-	-	0	0	0	0
Phytopathology	0	0	0	0	1	1	2	0	1	0	5	0	1
Agriculture, general ...	0	0	0	0	0	0	0	0	1	0	1	0	1
Agriculture, other	0	0	0	1	1	0	1	0	3	1	7	0	0
Social sciences	13	21	28	33	53	28	48	59	58	63	404	39	44
Anthropology	0	0	3	2	5	2	1	5	2	4	24	7	4
Archeology	0	0	0	0	0	0	0	0	0	1	1	0	0
Hist & phil of science[37].	-	-	-	-	-	-	-	-	-	-	-	-	0
Linguistics	0	1	1	0	2	1	3	2	3	4	17	1	5
Sociology	2	3	5	5	6	2	3	11	13	13	63	3	7
Economics	4	7	11	15	24	12	25	21	16	19	154	11	9
Econometrics	0	0	0	0	0	0	1	0	0	1	2	0	0
Agricultural economics[17].	-	-	-	-	-	-	-	-	-	0	0	0	1
Statistics[38].............	-	-	-	-	-	-	-	2	1	2	5	0	2
Geography	1	1	0	2	1	1	0	0	1	2	9	3	0
Pol sci, public admin[39]..	6	9	8	9	15	10	15	18	22	17	129	14	16
Political science[39]......	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology	3	9	10	8	10	8	22	19	16	34	139	16	32
Clinical	0	1	1	1	1	0	2	2	1	1	10	2	5
Counseling & guidance ..	2	0	0	0	1	0	0	0	0	0	3	1	2
Developmental & gerontol	0	0	2	2	0	1	2	0	0	1	8	0	0
Educational	0	0	0	0	0	0	0	2	0	1	3	0	0
School	0	0	0	0	0	0	0	1	0	0	1	0	1
Experimental[40]...........	-	3	1	1	3	2	1	1	0	0	12	2	0
Comparative[40]............	-	0	0	0	1	0	0	0	0	0	1	0	0
Physiological[40]..........	-	1	0	0	0	1	1	0	0	1	4	0	0
Industrial & personnel .	0	0	0	0	1	0	0	1	0	0	2	0	0
Personality	0	2	1	0	0	0	1	0	0	0	4	0	0
Psychometrics	0	1	1	1	0	1	0	0	0	0	4	0	0
Social	1	1	0	2	1	2	3	3	0	1	14	0	2
Psychology, general	0	0	4	1	1	1	11	4	15	18	55	9	7
Psychology, other	0	0	0	0	1	0	1	5	0	11	18	2	15
Total, non-sci & engineering[42].	41	55	53	66	92	100	135	201	148	310	1201	256	238
Total, all fields	88	146	141	198	273	255	431	450	394	633	3009	435	512

See footnotes at end of table.

Table 2. New science and engineering doctorates by subfield and citizenship status: 1960-81 - Con.

Unknown citizenship

Field of study	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
	Year of doctorate												
Mathematical sciences	17	27	40	27	17	25	22	20	222	29	23	52	397
Algebra	0	0	0	0	0	0	0	0	0	0	0	0	1
Analysis & funct anal	0	2	0	0	0	1	1	0	5	0	0	0	9
Geometry	0	0	0	0	0	0	0	0	0	0	0	0	1
Logic	1	0	0	0	0	0	0	0	1	0	0	0	3
Probability & math stat	2	1	2	2	3	2	0	1	15	1	1	2	29
Topology	0	0	0	0	1	0	0	0	1	0	0	0	2
Computing theory	0	7	6	3	1	0	0	0	17	0	0	0	21
Computer science	-	-	-	-	-	3	5	3	11	6	4	10	21
Operations research	-	0	2	0	0	1	1	0	4	1	2	3	7
Applied mathematics	3	4	4	4	2	1	2	3	30	2	1	3	49
Mathematics, general	11	13	26	18	10	16	12	13	134	18	15	33	244
Mathematics, other	0	0	0	0	0	1	1	0	4	1	0	1	10
Life sciences	83	80	187	85	108	106	103	104	965	89	128	217	1469
Biological sciences	79	76	164	80	100	95	90	87	874	78	98	176	1293
Biochemistry	16	17	21	10	17	19	12	12	141	12	17	29	216
Biophysics	7	5	3	14	10	9	7	6	71	6	1	7	87
Biometry, biostatistics	1	0	1	1	0	0	0	0	4	0	1	1	5
Anatomy	4	1	11	3	5	8	3	1	43	1	4	5	50
Cytology	0	2	0	0	3	2	1	0	9	0	1	1	11
Embryology	0	0	0	0	0	0	0	0	0	0	0	0	3
Immunology	0	0	1	0	2	5	2	0	10	0	1	1	11
Botany	3	1	11	0	2	1	6	1	25	4	7	11	60
Ecology	2	0	2	0	0	0	0	0	4	1	3	4	8
Microbiology & bacteriol	7	4	17	4	16	7	8	13	86	11	7	18	121
Animal & plant physiol	-	-	-	-	-	-	-	-	-	-	-	-	4
Animal physiology	2	1	8	2	2	3	12	4	43	1	2	3	64
Plant physiology	0	1	2	1	0	0	0	1	5	2	1	3	9
Zoology	1	5	13	5	1	5	6	7	45	4	6	10	83
Genetics	4	0	5	4	5	4	2	2	28	3	2	5	43
Entomology	1	2	8	1	1	1	4	2	21	3	2	5	39
Molecular biology	0	1	1	0	1	0	0	1	4	0	4	4	9
Nutrition/dietetics	-	-	-	-	1	0	3	3	7	2	4	6	13
Parasitology	-	0	1	0	1	0	0	0	2	0	1	1	3
Pathology	5	11	9	7	2	8	0	2	49	3	5	8	58
Pharmacology	3	2	18	5	8	2	6	6	56	4	5	9	78
Biological sci, general	17	16	20	17	14	13	14	18	148	18	17	35	225
Biological sci, other	6	7	7	6	9	6	4	8	73	3	7	10	93
Agricultural sciences	4	4	23	5	8	11	13	17	91	11	30	41	176
Agronomy	1	1	6	0	3	2	5	3	21	1	4	5	36
Animal husbandry	0	0	0	0	0	1	0	1	5	0	0	0	15
Food sci & technology	0	0	2	1	0	2	2	2	9	0	2	2	11
Fish & wildlife	0	0	0	0	1	0	0	0	1	1	2	3	5
Forestry	0	0	2	1	0	2	0	1	7	1	4	5	14
Horticulture	0	0	0	1	1	1	1	2	6	1	5	6	16
Soils & soil science	1	1	2	1	1	2	0	0	8	0	3	3	15
Animal sci & nutrition	0	0	7	1	1	0	3	2	14	3	6	9	23
Phytopathology	0	2	4	0	0	0	0	4	11	2	1	3	19
Agriculture, general	0	0	0	0	1	0	0	1	3	0	0	0	4
Agriculture, other	2	0	0	0	0	1	2	1	6	2	3	5	18
Social sciences	80	68	154	73	63	64	88	85	758	63	98	161	1323
Anthropology	11	11	17	10	11	10	13	10	104	7	15	22	150
Archeology	0	0	0	0	0	0	0	1	1	0	1	1	3
Hist & phil of science	0	0	0	0	1	0	0	1	2	0	0	0	2
Linguistics	6	2	9	2	0	6	8	9	48	5	9	14	79
Sociology	12	11	36	13	17	11	12	8	130	9	14	23	216
Economics	19	21	32	23	15	18	31	19	198	18	33	51	403
Econometrics	0	0	0	0	0	0	1	1	2	0	0	0	4
Agricultural economics	2	1	2	1	3	2	4	6	22	3	1	4	26
Statistics	2	4	4	4	1	1	2	0	20	0	1	1	26
Geography	3	2	13	4	2	3	2	4	36	5	4	9	54
Pol sci, public admin	25	16	41	16	1	-	-	-	129	-	-	-	258
Political science	-	-	-	-	12	13	15	26	66	16	20	36	102
Psychology	32	43	123	43	29	96	136	123	673	118	124	242	1054
Clinical	2	4	15	5	3	9	75	69	189	47	25	72	271
Counseling & guidance	1	1	1	1	2	2	4	2	17	3	1	4	24
Developmental & gerontol	0	0	8	0	0	0	2	0	10	0	0	0	18
Educational	2	2	7	3	0	1	2	4	21	5	2	7	31
School psychology	0	2	0	0	0	5	1	4	13	1	2	3	17
Experimental	2	1	1	2	2	0	0	1	11	1	2	3	26
Comparative	0	0	0	0	0	0	0	0	0	0	0	0	1
Physiological	2	0	0	0	0	0	0	1	3	0	1	1	8
Industrial & personnel	0	1	0	0	1	0	1	0	3	0	0	0	5
Personality	2	1	0	0	0	0	0	1	4	0	0	0	8
Psychometrics	0	0	0	0	0	0	0	1	1	0	0	0	5
Social	1	2	0	0	0	0	0	2	7	0	3	3	24
Psychology, general	10	20	88	28	19	49	46	34	310	38	64	102	467
Psychology, other	10	9	3	4	2	30	5	4	84	23	24	47	149
Total, non-sci & engineering	330	342	698	265	316	352	332	412	3531	423	537	960	5692
Total, all fields	638	670	1519	620	654	781	818	867	7514	866	1133	1999	12522

See footnotes at end of table.

SOURCES: National Science Foundation and National Research Council

1/ "Astronomy/astrophysics" was included in the field taxonomy until 1969 when separate entries were introduced. The dash (-) signifies that data are not available for a given time period. For example, data for "astronomy/astrophysics" are not available after 1969, while data for "astronomy" or "astrophysics" are not available prior to 1969. A zero (0) signifies that no doctorates were produced.

2/ This subfield was originally called "Electricity and Magnetism." In 1966 the name was changed to "Electromagnetism." In 1980 this subfield was deleted from the taxonomy.

3/ "Thermal physics" was originally shown as one subfield, "Mechanics and Heat." In 1960 this subfield was separated into "Mechanics" and "Heat (Thermal)." The latter was subsequently changed to "Thermal Phenomena" in 1963 and then to "Thermal Physics" in 1967. "Mechanics" was deleted from the taxonomy in 1977.

4/ "Plasma physics" was not added until 1969.

5/ This subfield was added in 1960 under the original name of "Heat (Thermal)." See footnote 3 for more information.

6/ This subfield was deleted in 1962.

7/ This subfield was deleted in 1962, but some entries appear for 1962 and 1963 due to use of outdated forms by some institutions.

8/ This subfield was deleted in 1980.

9/ This subfield was introduced in 1973.

10/ This subfield was originally specified as "Geochemistry." In 1963 the field was expanded to include "Mineralogy" and "Petrology."

11/ This subfield was introduced in 1976.

12/ This subfield was originally listed as "Hydrology." "Water Resources" was added to the title in 1977.

13/ This subfield was introduced in 1977.

14/ This subfield was deleted in 1976.

15/ In 1960 "Geophysical Engineering" and "Geological Engineering" were merged into "Geo-engineering." "Geo-engineering" became "Applied Geology, Geological engineering, Economic Geology, and Petroleum Engineering in 1962 and was split into "Applied Geology, Geological Engineering and Economic Geology" and "Fuel Technology and Petroleum Engineering" in 1969.

16/ This subfield was originally named "Aeronautical Engineering." In 1966 the term "Astronautical" was added.

17/ Thia subfield was introduced in 1969.

18/ This subfield was introduced in 1975.

19/ In 1961 "Nuclear Engineering" was deleted from the taxonomy, and previous cases were added to "Engineering Physics." In 1969 "Nuclear Engineering" was reinstated in the taxonomy.

20/ This subfield was originally specified as "Metallurgy and Metallurgical Engineering." The term "Physical" was introduced in 1967.

21/ This subfield was introduced in 1972.

22/ This subfield's full title is "Fuel Technology and Petroleum Engineering." It was added to the Engineering section of the taxonomy in 1972. (See also footnote 15.)

23/ This subfield was originally called "Sanitary Engineering." The term "Environmental" was added in 1977.

24/ This subfield was deleted from the taxonomy in 1969.

25/ "Mining Engineering" was originally deleted in 1961 but was restored to the taxonomy in 1969.

26/ This subfield was specified as "Analysis" through 1967. "Functional Analysis" was added in 1968.

27/ "Math Statistics" was deleted from the taxonomy in 1969 but was restored in 1972.

28/ This subfield was deleted in 1967.

29/ This subfield was introduced in 1973.

30/ This subfield was introduced in 1962.

31/ This subfield was introduced in 1972.

32/ This subfield was originally called "Microbiology." "Bacteriology" was added in 1970.

33/ In 1962 "Animal and Plant Physiology" was separated into "Animal Physiology" and "Plant Physiology."

34/ This subfield was deleted in 1960.

35/ This subfield was added in 1969 under the name of "Range Management." In 1972 the title was changed to "Soils and Soils Science." Previous cases under "Range Management" were converted to "Agriculture, Other."

36/ This subfield was introduced as "Animal Sciences" in 1973. The title was changed to "Animal Science and Animal Nutrition" in 1977.

37/ This subfield was introduced in 1971.

38/ This subfield was introduced in 1967.

39/ "Political Science, Public Administration" was split into two separate subfields in 1976.

40/ "Experimental, Comparative and Physiological Psychology" was split into three separate subfields in 1962.

41/ This subfield was deleted from the published taxonomy in 1962 but "write-in" responses were coded until 1969. Beginning in 1969, write-responses were included with "Psychology, Other."

42/ Non-science/engineering doctorates in this table include doctorates whose field of specialization is unknown.

Table 3. New science and engineering doctorates by subfield and race: 1975-81

Total, all races

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Total, science & engineering .	15261	14851	14387	14056	14184	14112	14141	100992
Physical sciences	2553	2392	2262	2161	2205	2035	2094	15702
Physics and astronomy	1034	987	919	868	870	766	768	6212
Astronomy[1]	52	68	61	63	52	48	44	388
Astrophysics[1]	58	63	48	64	49	61	56	399
Atomic & molecular	112	99	89	76	66	60	53	555
Electromagnetism[2]	10	11	9	9	4	-	-	43
Mechanics[3]	2	3	0	-	-	-	-	5
Acoustics	11	9	9	13	11	21	12	86
Fluids	16	19	12	10	14	10	9	90
Plasma[4]	44	66	62	59	48	51	55	385
Optics	26	44	27	26	36	33	41	233
Thermal[5]	8	3	5	8	6	5	4	39
Elementary particles ...	104	100	108	108	99	91	96	706
Nuclear structure	103	73	79	61	82	57	46	501
Solid state	266	228	201	196	195	155	193	1434
Physics, general	112	105	115	97	119	95	83	726
Physics, other	110	96	94	78	89	79	76	622
Chemistry	1519	1405	1343	1293	1335	1269	1326	9490
Analytical	127	136	166	164	189	167	209	1158
Inorganic	212	213	172	179	182	167	168	1293
Organic	524	438	430	393	404	401	427	3017
Nuclear	20	22	21	13	12	12	11	111
Physical	347	308	294	260	289	244	239	1981
Theoretical	40	43	30	38	42	40	27	260
Agricultural and food[8] ..	5	11	5	4	9	-	-	34
Pharmaceutical	59	48	41	45	37	36	44	310
Polymer[9]	33	33	42	45	45	44	39	281
Chemistry, general	101	98	89	94	80	98	100	660
Chemistry, other	51	55	53	58	46	60	62	385
Earth, env & marine sciences	530	540	581	540	566	538	486	3781
Mineralogy, petrology[10] ..	31	46	55	34	32	46	27	271
Geochemistry[10]	40	42	53	47	50	44	47	323
Stratigraphy, sediment .	41	48	32	29	31	38	37	256
Paleontology	39	40	26	29	34	20	19	207
Structural geology	15	21	19	26	23	19	27	150
Geophysics	70	22	-	-	-	-	-	92
Geophysics, solid earth.[11]	-	31	56	46	70	52	58	313
Geomorph & glacial geol.	29	28	21	23	14	12	12	139
Hydrology & water res[12] ..	17	11	15	22	17	22	12	116
Oceanography	78	78	100	84	79	77	63	559
Marine science, other[13] ..	-	-	9	28	29	25	27	118
Meteorology[14]	33	18	-	-	-	-	-	51
Atmospheric phys & chem.[11]	-	14	14	20	15	18	14	95
Atmospheric dynamics[11] ...	-	11	26	19	21	14	23	114
Atmospheric sci, other[11].	-	16	35	30	31	37	19	168
Environ science, general	56	31	22	15	22	13	27	186
Environ science, other .	13	24	26	26	27	24	18	158
Applied geology[15]	15	17	17	14	17	22	16	118
Fuel technology[15]	3	2	1	0	2	-	-	8
Earth science, general .	25	22	34	34	32	38	28	213
Earth science, other ...	25	18	20	14	20	17	12	126
Engineering	2134	1947	1798	1586	1615	1554	1467	12101
Aeronaut & astronautical[16]	112	92	68	62	45	44	56	479
Agricultural	38	24	17	24	27	28	21	179
Biomedical[17]	68	65	66	67	62	61	57	446
Chemical	255	202	205	173	185	164	171	1355
Civil	174	174	157	118	120	122	139	1004
Ceramic	18	18	25	22	18	17	16	134
Computer[18]	69	78	93	53	48	37	46	424
Electrical	370	367	323	266	321	271	251	2169
Electronics	58	55	59	37	52	51	51	363
Industrial	72	40	48	60	54	44	42	340
Nuclear[19]	69	93	77	78	69	71	75	532
Engineering mechanics ..	119	77	73	55	51	52	45	472
Engineering physics[19]	13	19	18	13	13	14	15	105
Mechanical	240	226	178	193	191	191	156	1375
Metallurgy[20]	87	65	64	67	52	71	46	455
Systems design	58	54	47	38	56	39	39	331
Operations research[21]	60	66	52	57	45	50	49	379
Fuel technology[22]	10	8	9	6	6	15	6	60
Sanitary & environmental[23]	57	55	53	52	58	57	53	385
Mining[24]	5	2	1	6	2	1	6	23
Materials science[17]	96	79	83	88	80	87	73	586
Engineering, general ...	21	26	22	24	19	26	15	153
Engineering, other	65	59	60	47	41	41	39	352

See footnotes at end of table.

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Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Total, all races

Field of study	1975	1976	1977	1978	1979	1980	1981	Total 1975-81
	Year of doctorate							
Mathematical sciences	923	803	769	756	778	751	711	5491
Algebra	106	97	76	74	78	68	40	539
Analysis and funct anal.[26]	144	116	119	98	89	74	75	715
Geometry	22	16	19	18	21	31	27	154
Logic	34	27	13	19	18	23	17	151
Number theory	21	23	28	17	16	22	21	148
Probability & math stat.[27]	141	117	126	130	127	111	112	864
Topology	82	59	57	50	53	51	45	397
Computing theory	136	131	89	48	22	12	13	451
Computer science[13]	-	-	25	90	175	169	188	647
Operations research[29]	40	32	31	34	33	28	20	218
Applied mathematics	86	80	95	82	79	82	90	594
Mathematics, general	69	63	54	59	45	47	41	378
Mathematics, other	42	42	37	37	22	33	22	235
Life sciences	3733	3696	3585	3707	3835	4035	4044	26635
Biological sciences	3100	3160	3071	3134	3262	3430	3416	22573
Biochemistry	553	535	536	529	540	608	584	3885
Biophysics	89	103	114	98	114	94	85	697
Biometry, biostatistics	32	39	42	38	41	36	40	268
Anatomy	109	127	102	132	145	137	148	900
Cytology[30]	35	43	34	29	39	42	42	264
Embryology	25	11	19	15	14	18	19	121
Immunology[31]	66	79	90	86	131	119	142	713
Botany	138	163	145	127	125	129	128	955
Ecology	131	136	152	162	168	159	184	1092
Hydrobiology	8	13	14	3	10	-	-	48
Microbiology & bacteriol[32]	332	320	283	310	317	334	314	2210
Animal physiology[33]	311	266	287	284	296	323	311	2078
Plant physiology[33]	52	51	30	37	43	46	56	315
Zoology	250	243	236	219	233	212	180	1573
Genetics	127	108	126	109	122	132	140	864
Entomology	135	118	119	120	124	127	115	858
Molecular biology[17]	140	138	118	158	124	165	174	1017
Nutrition/dietetics[11]	-	68	60	70	90	79	81	448
Parasitology[9]	15	18	15	10	16	17	14	105
Pathology	55	84	83	86	73	95	85	561
Pharmacology	153	186	183	198	196	238	259	1413
Biological sci, general	157	159	154	162	152	173	177	1134
Biological sci, other	187	152	129	152	149	147	138	1054
Agricultural sciences	633	536	514	573	573	605	628	4062
Agronomy	80	77	71	85	78	86	113	590
Animal husbandry[17]	17	14	17	17	21	20	15	121
Food sci & technology	73	66	59	81	70	64	53	466
Fish & wildlife	58	50	61	53	62	59	62	405
Forestry	64	57	53	66	64	61	70	435
Horticulture	54	30	39	41	51	45	48	308
Soils & soil science[35]	66	36	33	57	33	47	48	320
Animal sci & nutrition[36]	94	92	74	64	76	86	89	575
Phytopathology	71	57	57	60	63	79	71	458
Agriculture, general	1	5	0	3	1	2	1	13
Agriculture, other	55	52	50	46	54	56	58	371
Social sciences	2781	2705	2571	2448	2290	2290	2186	17271
Anthropology	353	389	351	354	346	346	329	2468
Archeology	20	20	22	31	30	26	27	176
Hist & phil of science[37]	26	31	28	23	25	21	22	176
Linguistics	159	119	145	127	111	138	120	919
Sociology	583	649	648	543	563	529	520	4035
Economics	674	646	592	569	564	539	575	4159
Econometrics	18	22	18	15	16	17	12	118
Agricultural economics[17]	103	100	87	93	79	103	103	668
Statistics[38]	23	22	17	29	12	24	20	147
Geography	164	133	129	128	109	105	85	853
Pol sci, public admin[39]	657	33	-	-	-	-	-	690
Political science[39]	1	541	534	536	435	442	373	2862
Psychology	2607	2768	2821	2858	2895	2909	3153	20011
Clinical	790	872	920	974	993	1047	1218	6814
Counseling & guidance	221	258	261	267	306	294	340	1947
Developmental & gerontol	171	184	198	203	214	202	197	1369
Educational	127	121	128	140	151	131	174	972
School	102	141	143	124	119	174	130	933
Experimental[40]	337	342	321	290	282	296	271	2139
Comparative[40]	21	26	22	20	21	8	11	129
Physiological[40]	116	130	126	120	98	106	98	794
Industrial & personnel	59	64	78	71	85	64	85	506
Personality	62	57	62	40	40	42	48	351
Psychometrics	15	25	17	14	22	20	24	137
Social	214	191	195	196	207	184	170	1357
Psychology, general	206	193	206	250	165	165	209	1394
Psychology, other	166	164	144	149	192	176	178	1169
Total, non-sci & engineering[42]	13534	13912	13102	12578	12599	12394	12121	90240
Total, all fields	28795	28763	27489	26634	26783	26506	26262	191232

See footnotes at end of table.

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Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

American Indian

	Year of doctorate							
Field of study	1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Total, science & engineering .	12	10	29	21	28	26	26	152
Physical sciences	0	0	6	4	1	3	1	15
Physics and astronomy	0	0	4	1	0	0	0	5
Atomic & molecular	0	0	1	0	0	0	0	1
Plasma[4]................	0	0	0	1	0	0	0	1
Physics, general	0	0	2	0	0	0	0	2
Physics, other	0	0	1	0	0	0	0	1
Chemistry	0	0	2	3	1	3	1	10
Analytical	0	0	0	1	0	1	1	3
Organic	0	0	1	2	1	1	0	5
Chemistry, general	0	0	1	0	0	1	0	2
Earth, env & marine sci	0	0	0	0	2	2	0	4
Mineralogy, petrology ..	0	0	0	0	1	1	0	2
Geochemistry[10]...........	0	0	0	0	0	1	0	1
Earth science, general .	0	0	0	0	1	0	0	1
Engineering	1	0	1	2	3	3	4	14
Aeronaut & astronautical[16]	1	0	0	1	0	0	0	2
Biomedical[17].............	0	0	0	0	0	1	0	1
Chemical	0	0	0	1	0	0	0	1
Civil	0	0	1	0	1	0	1	3
Electrical	0	0	0	0	1	0	0	1
Mechanical	0	0	0	0	1	1	2	4
Metallurgy[20]............	0	0	0	0	0	1	1	2
Mathematical sciences	3	0	1	1	1	0	1	7
Algebra	1	0	0	0	0	0	0	1
Analysis & funct anal[26]..	1	0	0	0	0	0	0	1
Probability & math stat.[27]	1	0	1	0	0	0	0	2
Mathematics, general ...	0	0	0	1	0	0	1	2
Computer science[13].......	0	0	0	0	1	0	0	1
Life sciences	1	3	8	7	3	6	7	35
Biological sciences	1	2	7	5	3	5	6	29
Biochemistry	0	0	0	0	1	1	1	3
Biophysics	0	0	0	1	0	0	0	1
Anatomy	0	1	0	0	0	0	0	1
Embryology	0	0	1	0	0	1	0	2
Botany	0	0	0	0	0	0	1	1
Microbiology & bacteriol[32]	0	0	0	2	0	1	1	4
Animal physiology[33].....	0	0	1	0	1	1	1	4
Zoology	0	0	1	1	0	0	0	2
Genetics	1	0	0	0	0	0	0	1
Entomology	0	0	0	0	1	0	1	2
Molecular biology[17]......	0	0	2	0	0	0	0	2
Nutrition/dietetics[11]....	0	0	0	0	0	1	1	2
Pathology	0	1	0	0	0	0	0	1
Pharmacology	0	0	2	0	0	0	0	2
Biological sci, general.	0	0	0	1	0	0	0	1
Agricultural sciences	0	1	1	2	0	1	1	6
Agronomy	0	0	0	1	0	0	0	1
Food sci & technology ..	0	0	0	1	0	1	0	2
Forestry	0	0	1	0	0	0	0	1
Animal sci & nutrition[36].	0	1	0	0	0	0	1	2
Social sciences	2	3	4	4	8	6	4	31
Anthropology	0	0	0	0	2	0	1	3
Linguistics	0	0	0	2	1	0	0	3
Sociology	1	0	1	1	3	2	0	8
Economics	1	1	0	1	2	2	2	9
Agricultural economics[17].	0	0	1	0	0	0	1	2
Geography	0	1	0	0	0	1	0	2
Political science[39]......	0	1	2	0	0	1	0	4
Psychology	5	4	9	3	10	6	9	46
Clinical	1	0	3	2	5	2	4	17
Counseling & guidance ..	0	0	2	0	1	1	0	4
Educational	0	1	1	1	0	1	1	5
School	0	0	0	0	1	0	0	1
Experimental[40]...........	1	2	1	0	0	0	1	5
Comparative[40]............	1	0	0	0	0	0	0	1
Physiological[40]..........	1	0	0	0	0	0	0	1
Industrial & personnel .	0	0	0	0	1	0	1	2
Social	0	0	0	0	1	0	0	1
Psychology, general	0	0	1	0	0	1	0	2
Psychology, other	1	1	1	0	1	1	2	7
Total, non-sci & engineering[42].	24	30	37	39	53	49	59	291
Total, all fields	36	40	66	60	81	75	85	443

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

White

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Total, science & engineering	13210	12926	12465	11813	11681	11938	12138	86371
Physical sciences	2180	2032	1883	1750	1787	1661	1752	13045
Physics and astronomy	873	843	747	710	694	622	631	5120
Astronomy[1]	50	63	52	55	43	40	39	342
Astrophysics[1]	51	56	42	56	42	51	50	348
Atomic & molecular	103	84	75	65	55	45	44	471
Electromagnatism[2]	9	7	6	8	4	-	-	34
Mechanics[3]	2	3	-	-	-	-	-	5
Acoustics	10	9	6	11	10	18	9	73
Fluids	16	16	11	8	11	8	8	78
Plasma[4]	35	58	51	50	39	45	46	324
Optics	20	39	23	24	33	29	34	202
Thermal[5]	8	2	3	7	5	5	3	33
Elementary particles	95	90	93	86	78	75	78	595
Nuclear structure	87	69	64	50	69	49	39	427
Solid state	215	191	165	162	152	128	163	1176
Physics, general	82	72	75	64	81	60	53	487
Physics, other	90	84	81	64	72	69	65	525
Chemistry	1307	1189	1136	1040	1093	1039	1121	7925
Analytical	117	124	145	134	166	141	189	1016
Inorganic	191	187	158	150	155	146	144	1131
Organic	455	379	375	330	332	331	376	2578
Nuclear	18	18	19	9	8	12	9	93
Physical	302	258	243	212	238	208	206	1667
Theoretical	34	41	27	35	38	38	25	238
Agricultural and food[8]	4	7	5	3	6	-	-	25
Pharmaceutical	46	34	32	29	27	24	36	228
Polymer[9]	28	24	34	28	37	26	25	202
Chemistry, general	66	69	55	59	53	63	60	425
Chemistry, other	46	48	43	51	33	50	51	322
Earth, env & marine sci	477	491	518	466	502	485	447	3386
Mineralogy, petrology[10]	30	43	50	30	28	42	26	249
Geochemistry[10]	34	38	46	43	46	42	44	293
Stratigraphy, sediment	40	47	31	26	28	36	36	244
Paleontology	37	37	26	29	33	20	18	200
Structural geology	15	20	16	25	23	18	27	144
Geophysics	57	18	-	-	-	-	-	75
Geophysics, solid earth.[11]	-	27	50	38	59	46	49	269
Geomorph & glacial geol.	27	27	21	20	14	12	12	133
Hydrology & water res[12]	16	11	13	15	11	20	12	98
Oceanography	69	70	88	77	72	72	56	504
Marine science, other[13]	-	-	8	26	28	21	27	110
Meteorology[14]	29	14	-	-	-	-	-	43
Atmospheric phys & chem.[11]	-	12	14	17	12	15	12	82
Atmospheric dynamics[11]	-	9	25	15	15	13	21	98
Atmospheric sci, other[11]	-	13	28	25	27	33	18	144
Environ science, general	53	28	17	14	18	12	25	167
Environ science, other	10	24	25	19	26	20	17	141
Applied geology[15]	13	15	15	12	15	21	16	107
Fuel technology[15]	2	2	1	0	2	-	-	7
Earth science, general	24	19	29	23	27	26	20	168
Earth science, other	21	17	15	12	18	16	11	110
Engineering	1649	1522	1428	1169	1155	1143	1092	9158
Aeronaut & astronautical[16]	94	81	59	44	29	33	46	386
Agricultural	34	22	16	21	20	23	17	153
Biomedical[17]	62	60	55	51	50	47	46	371
Chemical	178	143	150	120	131	116	122	960
Civil	125	121	120	87	90	88	100	731
Ceramic	15	12	23	20	14	12	13	109
Computer[18]	61	57	73	38	32	28	30	319
Electrical	293	287	237	191	215	197	182	1602
Electronics	43	46	44	26	30	37	41	267
Industrial	66	37	37	32	41	35	33	281
Nuclear[19]	59	81	63	64	54	55	55	431
Engineering mechanics	78	59	56	40	34	39	34	340
Engineering physics[19]	11	17	15	12	12	11	12	90
Mechanical	177	179	154	143	139	128	110	1030
Metallurgy[20]	61	51	53	40	40	48	29	322
Systems design	48	43	40	32	41	34	32	270
Operations research[21]	42	57	48	43	36	38	38	302
Fuel technology[22]	7	7	5	3	5	10	3	40
Sanitary & environmental[23]	46	44	47	40	45	51	46	319
Mining[25]	4	2	1	4	2	1	5	19
Materials science[17]	74	54	61	69	53	66	51	428
Engineering, general	17	17	21	14	15	18	12	114
Engineering, other	54	45	50	35	27	28	35	274

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

White

	Year of doctorate							
Field of study	1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Mathematical sciences	796	698	671	640	658	639	608	4710
Algebra	97	89	70	70	68	61	37	492
Analysis & funct anal[26]..	124	107	105	82	71	66	67	622
Geometry	20	13	16	14	20	28	23	134
Logic	32	26	12	16	17	19	17	139
Number theory	18	21	28	16	13	20	19	135
Probability & math stat.[27]	123	102	108	109	104	88	95	729
Topology	72	52	51	41	47	47	40	350
Computing theory	120	117	80	42	22	11	11	403
Computer science[13].......	-	-	22	77	153	143	162	557
Operations research[28]....	36	25	26	31	25	22	17	182
Applied mathematics	69	70	79	73	68	67	73	499
Mathematics, general ...	46	42	40	41	29	37	29	264
Mathematics, other	39	34	34	28	21	30	18	204
Life sciences	3311	3276	3198	3188	3333	3511	3557	23374
Biological sciences	2750	2789	2740	2702	2830	2972	3006	19789
Biochemistry	477	462	471	442	458	517	509	3336
Biophysics	75	92	95	78	91	73	78	582
Biometry, biostatistics.	31	32	37	31	32	31	36	230
Anatomy	99	117	94	124	124	125	138	821
Cytology[30]...............	31	35	31	28	28	33	38	224
Embryology	23	9	18	14	8	14	15	101
Immunology[31].............	57	69	81	74	113	95	124	613
Botany	130	148	133	112	110	116	116	865
Ecology	126	125	143	157	148	145	169	1013
Hydrobiology[8]...........	7	13	14	3	8	-	-	45
Microbiology & bacteriol[32]	290	283	251	256	270	284	268	1902
Animal physiology[33]......	281	246	263	249	264	281	283	1867
Plant physiology[33]......	47	45	27	30	39	39	49	276
Zoology	233	223	219	203	210	199	167	1454
Genetics	112	92	114	98	110	118	128	772
Entomology	123	109	105	109	112	111	97	766
Molecular biology[17]......	127	124	101	133	107	138	153	883
Nutrition/dietetics	-	54	43	50	74	66	61	348
Parasitology[9]...........	13	17	14	9	11	16	12	92
Pathology	47	73	71	78	67	84	77	497
Pharmacology	135	159	164	163	175	203	226	1225
Biological sci, general.	134	125	134	126	135	153	138	945
Biological sci, other ..	152	137	117	135	136	131	124	932
Agricultural sciences	561	487	458	486	503	539	551	3585
Agronomy	72	70	62	75	66	77	105	527
Animal husbandry[17].......	17	14	16	17	20	18	13	115
Food sci & technology ..	52	54	50	55	59	49	39	358
Fish & wildlife	51	46	57	48	57	58	58	375
Forestry	62	56	47	53	58	60	63	399
Horticulture	50	26	33	36	44	41	40	270
Soils & soil science[35]...	58	33	27	54	27	37	39	275
Animal sci & nutrition[36].	79	83	68	54	64	76	77	501
Phytopathology	67	52	53	54	57	73	65	421
Agriculture, general ...	1	4	0	1	1	2	1	10
Agriculture, other	52	49	45	39	50	48	51	334
Social sciences	2435	2366	2226	2076	1897	1937	1840	14777
Anthropology	313	338	316	309	289	301	283	2149
Archeology	20	19	21	28	27	24	26	165
Hist & phil of science[37].	24	24	27	23	19	19	19	155
Linguistics	133	105	118	102	87	110	105	760
Sociology	504	566	556	454	465	453	444	3442
Economics	602	567	522	485	464	443	477	3560
Econometrics	16	16	12	12	15	13	9	93
Agricultural economics[17].	91	85	79	79	63	88	84	569
Statistics[38].............	20	18	15	19	9	17	17	115
Geography	148	124	112	112	95	87	71	749
Pol sci, public admin[39]..	563	25	-	-	-	-	-	588
Political science[39]......	1	479	448	453	364	382	305	2432
Psychology	2362	2541	2541	2524	2549	2562	2842	17921
Clinical	741	810	837	882	870	928	1087	6155
Counseling & guidance ..	202	243	235	240	274	262	307	1763
Developmental & gerontol	164	173	186	187	194	175	187	1266
Educational	114	109	120	119	132	111	159	864
School	93	134	134	112	112	167	120	872
Experimental[40]...........	318	321	299	270	258	272	257	1995
Comparative[40]............	18	24	21	19	17	7	10	116
Physiological[40]..........	109	116	116	104	95	94	92	726
Industrial & personnel .	54	62	72	68	80	56	75	467
Personality	53	52	56	31	31	35	43	301
Psychometrics	13	22	15	11	19	18	24	122
Social	190	168	177	170	182	165	153	1205
Psychology, general	147	153	156	188	122	120	167	1053
Psychology, other	146	154	117	123	163	152	161	1016
Total, non-sci & engineering[42].	11751	12017	11191	10528	10514	10518	10266	76785
Total, all fields	24961	24943	23656	22341	22395	22456	22404	163156

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Asian American

Field of study	Year of doctorate							Total
	1975	1976	1977	1978	1979	1980	1981	1975-81
Total, science & engineering .	807	787	738	826	865	856	806	5685
Physical sciences	171	181	160	179	168	164	146	1169
Physics and astronomy	74	52	63	58	63	46	55	411
Astronomy[1]	1	1	2	0	3	3	0	10
Astrophysics[1]	3	4	3	3	0	2	1	16
Atomic & molecular	5	6	5	4	4	3	3	30
Electromagnetism[2]	1	2	2	1	0	-	-	6
Acoustics	0	0	0	1	1	3	2	7
Fluids	0	2	1	2	1	0	1	7
Plasma[4]	5	4	7	2	5	1	4	28
Optics	2	2	2	2	1	4	4	17
Thermal[5]	0	0	2	0	0	0	1	3
Elementary particles ...	4	3	7	5	7	7	4	37
Nuclear structure	8	3	6	2	5	3	1	28
Solid state	31	14	13	18	20	11	15	122
Physics, general	8	8	8	12	12	5	15	68
Physics, other	6	3	5	6	4	4	4	32
Chemistry	97	129	97	121	105	118	91	758
Analytical	2	4	10	12	9	12	8	57
Inorganic	9	16	5	10	10	13	7	70
Organic	31	38	29	30	32	41	30	231
Nuclear chemistry	0	2	1	3	1	0	0	7
Physical	25	32	24	25	21	19	13	159
Theoretical chemistry ..	4	0	1	1	2	0	1	9
Agricultural and food[8] ..	1	2	0	1	1	-	-	5
Pharmaceutical	8	10	7	13	7	10	3	58
Polymer[9]	5	9	4	12	4	13	14	61
Chemistry, general	8	12	9	10	13	6	6	64
Earth, env & marine sciences	19	21	21	25	21	22	12	141
Mineralogy, petrology[10] ..	0	1	2	0	0	1	0	4
Geochemistry[10]	1	2	3	1	1	1	1	10
Stratigraphy, sediment .	0	0	0	0	1	0	0	1
Paleontology	1	0	0	0	0	0	0	1
Geophysics	7	4	-	-	-	-	-	11
Geophysics, solid earth.[11]	-	0	4	6	5	4	4	23
Geomorph & glacial geol.	0	0	0	1	0	0	0	1
Hydrology & water res[12] ..	1	0	0	4	1	1	0	7
Oceanography	3	2	5	1	3	4	2	20
Marine science, other[13] ..	-	-	0	0	0	2	0	2
Meteorology[14]	1	4	-	-	-	-	-	5
Atmospheric phys & chem.[11]	-	1	0	3	0	2	0	6
Atmospheric dynamics[11] ...	-	1	1	2	4	1	2	11
Atmospheric sci, other[11].	-	3	2	4	1	2	1	13
Environ science, general	1	1	2	0	2	1	1	8
Environ science, other .	2	0	0	2	0	2	0	6
Applied geology[15]	0	1	0	0	1	0	0	2
Fuel technology[15]	1	0	0	0	0	-	-	1
Earth science, general .	1	1	1	1	1	1	1	7
Earth science, other ...	0	0	1	0	1	0	0	2
Engineering	274	279	249	272	306	278	282	1940
Aeronaut & astronautical[16]	9	6	6	15	10	7	6	59
Agricultural	2	2	1	3	2	0	3	13
Biomedical[17]	1	4	6	8	7	4	6	36
Chemical	51	37	37	42	41	35	42	285
Civil	28	40	25	19	20	21	26	179
Ceramic	1	5	2	2	0	4	3	17
Computer[18]	3	13	16	9	13	7	16	77
Electrical	41	50	57	42	71	45	50	356
Electronics	9	4	12	3	14	7	6	55
Industrial	3	1	5	2	9	6	6	32
Nuclear[19]	4	10	11	8	10	13	15	71
Engineering mechanics ..	28	13	15	11	10	10	7	94
Engineering physics[19]	0	2	0	1	1	2	3	9
Mechanical	36	28	17	39	35	55	36	246
Metallurgy[20]	14	7	6	15	10	17	15	84
Systems design[18]	5	7	5	6	10	4	3	40
Operations research[21]	8	6	3	8	5	7	10	47
Fuel technology[22]	2	1	2	3	0	2	2	12
Sanitary & environmental[23]	7	5	3	6	7	5	2	35
Mining[25]	0	0	0	2	0	0	1	3
Materials science[17]	14	20	17	15	21	15	18	120
Engineering, general ...	1	7	0	3	3	3	3	20
Engineering, other	7	11	3	10	7	9	3	50

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Asian American

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Mathematical sciences	62	49	42	47	55	51	56	362
Algebra	6	3	3	0	3	1	2	18
Analysis & funct anal[26].	11	4	6	8	7	2	4	42
Geometry	1	1	1	0	0	3	2	8
Logic	0	0	0	2	0	1	0	3
Number theory	2	1	0	1	1	1	1	7
Probability & math stat.[27]	12	9	12	14	14	17	10	88
Topology	3	3	1	2	3	3	1	16
Computing theory	12	8	3	0	0	1	2	26
Computer science[13].......	0	0	0	4	9	9	16	38
Operations research[29]...	1	4	4	1	5	4	1	20
Applied mathematics	6	6	7	3	5	6	11	44
Mathematics, general	7	5	3	6	8	3	4	36
Mathematics, other	1	5	2	6	0	0	2	16
Life sciences	187	167	161	188	188	198	181	1270
Biological sciences	141	147	140	151	165	170	156	1070
Biochemistry	38	44	34	44	42	35	37	274
Biophysics	6	6	9	11	9	9	3	53
Biometry, biostatistics.	0	5	3	4	5	5	2	24
Anatomy	6	2	2	1	7	3	3	24
Cytology[30]...............	1	1	1	0	4	4	0	11
Embryology	0	2	0	1	1	1	1	6
Immunology[31]..............	5	2	7	5	6	12	11	48
Botany	1	5	1	5	4	5	3	24
Ecology	2	2	1	4	5	1	4	19
Hydrobiology[8]............	0	0	0	0	1	-	-	1
Microbiology & bacteriol[32]	17	16	11	13	20	23	16	116
Animal physiology[33]......	8	6	9	8	14	9	10	64
Plant physiology[33].......	4	4	0	2	2	3	2	17
Zoology	2	2	3	2	3	1	3	16
Genetics	7	6	5	3	9	9	5	44
Entomology	0	2	5	8	6	5	9	35
Molecular biology[17]......	7	6	9	8	5	8	5	48
Nutrition/dietetics[11]....	-	9	10	8	7	6	4	44
Parasitology[9]............	1	0	1	0	1	1	0	4
Pathology	3	2	5	1	1	3	4	19
Pharmacology	11	13	12	10	5	15	16	82
Biological sci, general.	6	6	4	7	4	6	14	47
Biological sci, other ..	16	6	8	6	4	6	4	50
Agricultural sciences	46	20	21	37	23	28	25	200
Agronomy	5	1	3	3	2	2	3	19
Animal husbandry[17].......	0	0	0	0	1	1	1	3
Food sci & technology ..	16	8	4	18	5	10	6	67
Fish & wildlife	5	1	3	2	1	0	0	12
Forestry	1	1	2	5	2	0	3	14
Horticulture	4	0	3	2	3	2	3	17
Soils & soil science[35]...	4	1	0	1	2	6	2	16
Animal sci & nutrition[36].	7	3	1	3	3	3	4	24
Phytopathology	3	3	2	0	3	0	2	13
Agriculture, general	0	1	0	0	0	0	0	1
Agriculture, other	1	1	3	3	1	4	1	14
Social sciences	73	68	72	87	91	93	88	572
Anthropology	4	5	6	5	7	9	4	40
Archeology	0	0	0	0	2	0	0	2
Hist & phil of science[37].	0	2	0	0	0	0	0	2
Linguistics	6	5	8	4	9	6	5	43
Sociology	13	12	15	16	21	14	18	109
Economics	16	24	20	32	29	38	32	191
Econometrics	2	3	2	2	0	2	3	14
Agricultural economics[17].	6	4	1	5	7	2	4	29
Statistics[38].............	1	1	1	9	2	6	3	23
Geography	5	1	1	3	6	5	4	25
Pol sci, public admin[39]..	20	2	-	-	-	-	-	22
Political science[39]......	0	9	18	11	8	11	15	72
Psychology	21	22	33	28	36	50	41	231
Clinical	5	7	6	2	11	18	13	62
Counseling & guidance ..	0	0	3	2	1	4	6	16
Developmental & gerontol	2	3	4	3	2	3	2	19
Educational	1	0	1	4	2	4	2	14
School	1	0	2	0	1	0	1	5
Experimental[40]...........	2	3	2	2	7	5	4	25
Comparative[40]............	0	0	0	1	0	0	0	1
Physiological[40]..........	1	2	2	3	2	3	3	16
Industrial & personnel .	2	0	1	1	0	0	1	5
Personality	1	0	0	2	0	2	1	6
Psychometrics	0	0	2	1	1	2	0	6
Social	5	5	4	2	2	4	1	23
Psychology, general	1	2	4	2	3	3	3	18
Psychology, other	0	0	2	3	4	2	4	15
Total, non-sci & engineering[42].	218	188	172	206	237	246	256	1523
Total, all fields	1025	975	910	1032	1102	1102	1062	7208

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Black

Field of study	1975	1976	1977	1978	1979	1980	1981	Total 1975-81
	Year of doctorate							
Total, science & engineering .	270	277	303	309	309	305	316	2089
Physical sciences	34	25	32	37	37	16	24	205
Physics and astronomy	11	5	10	8	8	4	6	52
Astrophysics[7]...........	1	0	0	0	1	1	1	4
Atomic & molecular	0	0	3	0	1	0	1	5
Plasma physics	0	0	0	0	0	2	1	3
Optics	1	0	0	0	1	0	0	2
Elementary particles ...	2	2	3	3	0	0	1	11
Nuclear structure[6]......	1	0	1	1	2	0	0	5
Solid state	3	2	3	1	1	0	0	10
Physics, general	0	0	0	2	0	0	2	4
Physics, other	3	1	0	1	2	1	0	8
Chemistry	23	20	22	29	29	12	18	153
Analytical	4	3	4	5	2	0	1	19
Inorganic	4	3	2	5	5	2	5	26
Organic	13	2	5	4	9	3	3	39
Nuclear chemistry	0	2	0	0	0	0	0	2
Physical	1	6	7	7	9	2	2	34
Theoretical chemistry ..	1	1	1	0	1	0	0	4
Agricultural and food[8]..	0	1	0	0	0	-	-	1
Pharmaceutical	0	0	0	1	0	0	1	2
Polymer[9]................	0	0	2	2	1	0	0	5
Chemistry, general	0	2	1	4	2	3	6	18
Chemistry, other	0	0	0	1	0	2	0	3
Earth, env & marine sciences	1	0	2	4	3	1	4	15
Mineralogy, petrology[10]..	0	0	0	0	1	0	0	1
Geophysics, solid earth.	0	0	0	0	0	0	1	1
Geomorph & glacial geol.	-	0	0	1	0	0	0	1
Hydrology & water res[12]..	0	0	1	1	0	0	0	2
Oceanography	0	0	1	0	0	0	0	1
Atmospheric phys & chem.[11]	-	0	0	0	1	0	1	2
Atmospheric sci, other[11].	-	0	0	0	1	0	0	1
Environ science, general	-	0	0	0	0	0	1	1
Environ science, other .	1	0	0	2	0	0	1	4
Earth science, general .	0	0	0	0	0	1	0	1
Engineering	16	21	15	13	20	18	19	122
Aeronaut & astronautical[16]	0	1	0	0	1	1	0	3
Agricultural	0	0	0	0	2	1	0	3
Biomedical[17].............	0	0	0	1	1	1	1	4
Chemical	0	2	1	1	1	1	2	8
Civil	1	3	0	3	2	1	3	13
Computer[18]...............	0	0	1	1	0	2	0	4
Electrical	5	8	5	2	6	6	6	38
Electronics	2	1	1	0	3	0	1	8
Industrial	1	0	1	3	0	0	0	5
Nuclear[19]................	0	1	1	0	0	0	1	3
Engineering mechanics ..	0	0	0	0	0	0	1	1
Engineering physics[19]....	1	0	1	0	0	0	0	2
Mechanical	5	1	1	0	1	2	1	11
Metallurgy[20].............	1	0	0	0	0	0	0	1
Systems design[18].........	0	1	1	0	1	0	1	4
Operations research[21]....	0	1	0	0	1	1	0	3
Fuel technology[22]........	0	0	1	0	0	1	1	3
Sanitary & environmental[23]	0	1	1	1	0	0	1	4
Materials science[17]......	0	1	0	0	0	1	0	2
Engineering, general ...	0	0	0	1	1	0	0	2

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Black

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Mathematical sciences	11	5	10	13	12	12	11	74
Algebra	2	2	0	2	2	2	0	10
Analysis and funct anal.[26]	1	1	3	2	3	3	3	16
Geometry	0	0	1	0	0	0	0	1
Number theory	0	0	0	0	1	0	0	1
Probability & math stat.[27]	2	0	1	2	1	2	3	11
Topology	1	1	1	1	1	0	0	5
Computing theory	0	0	0	1	0	0	0	1
Computer science[13].......	0	0	0	0	1	0	2	3
Operations research[29]....	1	0	0	1	1	0	2	5
Applied mathematics	2	0	3	3	1	1	0	10
Mathematics, general ...	2	0	1	0	1	2	1	7
Mathematics, other	0	1	0	1	0	2	0	4
Life sciences	54	61	51	66	44	58	61	395
Biological sciences	49	53	36	55	35	51	50	329
Biochemistry	7	4	6	9	5	7	9	47
Biophysics	2	0	1	0	0	2	0	5
Biometry, biostatistics.	0	0	0	0	2	0	0	2
Anatomy	1	0	0	2	2	3	1	9
Cytology[30]...............	0	2	0	0	1	0	1	4
Embryology	0	0	0	0	2	0	3	5
Immunology[31].............	1	4	[illegible]	1	2	2	2	12
Botany	2	1	[illegible]	5	2	1	1	15
Ecology	1	2	2	0	0	2	0	7
Microbiology & bacteriol[32]	8	3	6	12	5	6	7	47
Animal physiology[33]......	7	6	0	4	5	1	2	25
Plant physiology[33]......	0	0	1	0	0	2	0	3
Zoology	3	6	3	5	0	3	3	23
Genetics	3	6	0	1	0	0	0	10
Entomology	2	2	1	1	0	2	0	8
Molecular biology[17].......	2	4	1	2	1	5	3	18
Nutrition/dietetics[11]....	0	2	4	2	5	3	7	23
Parasitology[9]...........	0	1	0	0	2	0	0	3
Pathology	2	1	0	2	0	2	0	7
Pharmacology	1	4	1	6	1	4	3	20
Biological sci, general.	3	2	5	2	0	5	5	22
Biological sci, other ..	4	3	2	1	0	1	3	14
Agricultural sciences	5	8	15	11	9	7	11	66
Agronomy	1	3	1	1	2	2	0	10
Food sci & technology ..	0	1	3	1	3	0	1	9
Fish & wildlife	0	0	0	1	0	0	0	1
Forestry	0	0	1	0	0	0	2	3
Horticulture	0	2	0	0	2	1	1	6
Soils & soil science[35]..	2	1	4	1	0	0	3	11
Animal sci & nutrition[36].	2	1	2	4	0	0	2	11
Phytopathology	0	0	2	0	1	2	1	6
Agriculture, other	0	0	2	3	1	2	1	9
Social sciences	76	79	98	76	78	81	64	572
Anthropology	6	13	1	5	8	10	7	50
Linguistics	4	2	6	3	3	9	2	29
Sociology	26	33	33	29	30	24	25	200
Economics	10	10	19	6	9	13	16	83
Econometrics	0	0	1	0	0	0	0	1
Agricultural economics[17].	0	2	2	4	2	4	7	21
Geography	6	3	3	2	2	5	2	23
Pol sci, public admin[39]..	24	1	-	-	-	-	-	25
Political science[39]......	0	15	33	27	24	16	25	140
Psychology	78	86	95	100	115	119	113	706
Clinical	22	29	40	42	40	43	55	271
Counseling & guidance ..	8	10	7	9	14	9	17	74
Developmental & gerontol	1	5	1	4	6	12	2	31
Educational	3	5	2	6	8	7	2	33
School	4	5	3	4	4	5	2	27
Experimental[40]...........	6	3	5	5	3	2	3	27
Comparative[40]............	0	0	1	0	1	0	0	2
Physiological[40]..........	2	2	1	4	0	5	1	15
Industrial & personnel .	0	1	1	1	0	4	4	11
Personality	2	4	4	1	3	0	3	17
Psychometrics	0	1	0	0	1	0	0	2
Social	12	8	8	9	14	13	9	73
Psychology, general	11	7	6	6	12	10	9	61
Psychology, other	7	6	16	9	9	9	6	62
Total, non-sci & engineering[42].	787	872	891	797	804	801	788	5740
Total, all fields	1057	1149	1194	1106	1113	1106	1104	7829

See footnotes at end of table.

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Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Hispanic

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Total, science & engineering .	143	126	186	199	220	207	229	1310
Physical sciences	19	17	33	20	33	27	30	179
Physics and astronomy	9	6	13	6	15	12	8	69
Astronomy[1]...............	0	0	0	0	1	2	0	3
Astrophysics[1]...........	0	0	0	1	1	1	2	5
Atomic & molecular	1	1	1	1	1	0	1	6
Acoustics	0	0	1	0	0	0	0	1
Fluids	0	0	0	0	1	0	0	1
Plasma physics	1	0	0	0	0	1	0	2
Optics	0	1	1	0	0	0	0	2
Elementary particles ...	0	0	2	2	3	2	2	11
Nuclear structure	2	1	1	0	0	1	0	5
Solid state	1	2	2	2	3	3	3	16
Physics, general	2	1	3	0	2	1	0	9
Physics, other	2	0	2	0	3	1	0	8
Chemistry	10	11	20	14	18	15	22	110
Analytical	0	2	1	3	3	4	1	14
Inorganic	3	1	2	1	1	1	4	13
Organic	3	3	5	5	6	7	7	36
Nuclear chemistry	0	0	0	0	0	0	1	1
Physical	4	4	6	1	7	2	4	28
Theoretical chemistry ..	0	0	0	1	1	0	1	3
Pharmaceutical	0	1	1	0	0	0	2	4
Polymer[9]................	0	0	1	1	0	0	0	2
Chemistry, general	0	0	4	2	0	0	2	8
Chemistry, other	0	0	0	0	0	1	0	1
Earth, env & marine sciences	4	0	12	5	6	4	6	37
Mineralogy, petrology[10]..	0	0	1	0	0	0	0	1
Geochemistry[10]...........	1	0	0	0	1	0	1	3
Stratigraphy, sediment .	0	0	0	0	0	0	1	1
Structural geology	0	0	1	0	0	0	0	1
Geophysics, solid earth.[11]	-	0	2	1	0	1	1	5
Hydrology & water res[12]..	0	0	0	0	1	0	0	1
Oceanography	2	0	1	0	1	0	1	5
Marine science, other ..	-	0	0	1	0	1	0	2
Atmospheric phys & chem.[11]	-	0	0	0	2	0	1	3
Atmospheric sci, other[11].	-	0	3	0	0	1	0	4
Environ science, general	0	0	1	0	1	0	0	2
Environ science, other .	0	0	0	1	0	0	0	1
Applied geology[15]........	1	0	1	0	0	0	0	2
Earth science, general .	0	0	1	2	0	1	1	5
Earth science, other ...	0	0	1	0	0	0	0	1
Engineering	17	16	22	32	24	27	16	154
Aeronaut & astronautical[16]	0	0	2	1	1	1	0	5
Agricultural	0	0	0	0	1	1	0	2
Biomedical[17].............	0	0	1	2	2	1	0	6
Chemical	4	3	5	2	3	4	1	22
Civil	0	0	2	6	2	7	4	21
Ceramic	0	0	0	0	2	0	0	2
Computer[18]...............	0	0	1	3	0	0	0	4
Electrical	2	3	4	7	3	4	0	23
Electronics	0	1	0	1	2	2	2	8
Industrial	0	0	2	0	0	1	1	4
Nuclear[19]................	1	0	0	1	2	0	0	4
Engineering mechanics ..	1	2	0	0	0	1	0	4
Engineering physics[19]....	0	0	1	0	0	0	0	1
Mechanical	1	1	2	3	2	0	3	12
Metallurgy[20].............	1	0	0	2	0	1	1	5
Systems design	1	2	1	0	0	0	1	5
Operations research[21]....	2	0	0	1	2	2	0	7
Fuel technology[22]........	0	0	0	0	0	1	0	1
Sanitary & environmental[23]	2	3	0	2	1	0	3	1
Materials science[17]......	2	0	0	0	1	0	0	3
Engineering, general ...	0	0	0	1	0	0	0	1
Engineering, other	0	1	1	0	0	1	0	3

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 -Con.

Hispanic

Field of study	1975	1976	1977	1978	1979	1980	1981	Total 1975-81
	Year of doctorate							
Mathematical sciences	8	9	10	5	12	6	5	55
Algebra	0	1	2	0	2	1	0	6
Analysis and funct anal.[26]	2	3	2	0	1	0	0	8
Geometry	0	0	0	0	0	0	1	1
Number theory	0	1	0	0	0	0	0	1
Probability & math stat.[27]	0	1	2	1	4	1	1	10
Topology	1	0	1	1	0	0	0	3
Computing theory	1	1	1	0	0	0	0	3
Computer science[13].......	0	0	0	0	2	1	0	3
Operations research[29]....	0	0	0	1	0	0	0	1
Applied mathematics	3	1	2	0	2	2	1	11
Mathematics, general ...	0	1	0	0	1	1	1	4
Mathematics, other	1	0	0	2	0	0	1	4
Life sciences	36	29	29	39	44	36	55	268
Biological sciences	32	25	25	30	38	31	41	222
Biochemistry	7	6	5	8	7	5	6	44
Biophysics	0	0	1	0	2	0	1	4
Biometry, biostatistics.	0	1	1	0	0	0	0	2
Anatomy	0	0	2	0	4	0	2	8
Cytology[30].............	2	0	1	0	1	1	1	6
Embryology	0	0	0	0	1	1	0	2
Immunology[31]............	0	0	0	3	2	1	2	8
Botany	1	4	3	1	2	2	1	14
Ecology	1	1	0	0	3	3	3	11
Microbiology & bacteriol[32]	5	4	2	4	1	4	6	26
Animal physiology[33].....	3	2	4	4	2	3	4	22
Plant physiology[33]......	0	0	0	2	1	0	1	4
Zoology	1	2	0	1	1	1	2	8
Genetics	2	0	3	0	0	1	2	8
Entomology	3	1	2	1	2	3	3	15
Molecular biology[17]......	2	0	0	2	2	2	3	11
Nutrition/dietetics	-	1	0	3	0	1	0	5
Parasitology	1	0	0	1	1	0	1	4
Pathology	1	0	1	0	1	0	0	3
Pharmacology	2	0	0	0	1	2	1	6
Biological sci, general.	0	3	0	0	2	1	1	7
Biological sci, other ..	1	0	0	0	2	0	1	4
Agricultural sciences	4	4	4	9	6	5	14	46
Agronomy	1	0	1	0	1	0	3	6
Food sci & technology ..	1	1	0	2	1	1	3	9
Fish & wildlife	0	0	0	1	1	0	1	3
Forestry	0	0	0	1	1	0	1	3
Horticulture	0	1	1	1	0	0	2	5
Soils & soil science[35]..	0	1	1	0	0	1	1	4
Animal sci & nutrition[36].	1	0	1	0	1	1	2	6
Phytopathology	0	1	0	2	1	1	1	6
Agriculture, general ...	0	0	0	1	0	0	0	1
Agriculture, other	1	0	0	1	0	1	0	3
Social sciences	27	28	40	47	52	53	51	298
Anthropology	3	9	6	8	6	3	9	44
Archeology	0	0	0	2	0	0	0	2
Linguistics	0	0	7	3	6	6	3	25
Sociology	8	6	14	13	15	16	15	87
Economics	4	2	3	7	10	13	12	51
Econometrics	0	0	0	0	0	1	0	1
Agricultural economics[17].	2	2	2	3	1	2	2	14
Statistics[38].............	1	1	0	0	0	1	0	3
Geography	0	0	3	2	1	1	2	9
Pol sci, public admin[39].	9	0	-	-	-	-	-	9
Political science[39].....	0	8	5	9	13	10	8	53
Psychology	32	27	40	51	49	54	66	319
Clinical	9	8	19	19	24	25	30	134
Counseling & guidance ..	5	4	4	3	4	8	7	35
Developmental & herontol	1	2	1	1	3	3	1	12
Educational	4	1	3	3	1	2	5	19
School	0	0	2	2	0	0	3	7
Experimental[40]..........	2	1	1	3	0	5	3	15
Comparative[40]...........	0	1	0	0	1	0	1	3
Physiological[40].........	2	5	2	4	1	1	1	16
Industrial & personnel .	1	0	3	0	2	1	1	8
Personality	1	0	0	2	2	1	0	6
Psychometrics	0	1	0	1	0	0	0	2
Social	0	2	0	4	4	0	4	14
Psychology, general	3	1	2	4	3	5	6	24
Psychology, other	4	1	3	5	4	3	4	24
Total, non-sci & engineering[42].	194	237	288	339	319	278	296	1951
Total, all fields	337	363	474	538	539	485	525	3261

See footnotes at end of table.

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Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Other & unknown

Field of study	1975	1976	1977	1978	1979	1980	1981	Total 1975-81
	Year of doctorate							
Total, science & engineering .	819	725	666	888	881	780	626	5385
Physical sciences	149	137	148	171	179	164	141	1089
Physics and astronomy	67	81	82	85	90	82	68	555
Astronomy[1]................	1	4	7	8	5	3	5	33
Astrophysics[1]............	3	3	3	4	5	6	2	26
Atomic & molecular	3	8	4	6	5	12	4	42
Electromagnetism[2].......	0	2	1	0	0	-	-	3
Acoustics	1	0	2	1	0	0	1	5
Fluids	0	1	0	0	1	2	0	4
Plasma[4]...................	3	4	4	6	4	2	4	27
Optics	3	2	1	0	1	0	3	10
Thermal	0	1	0	1	1	0	0	3
Elementary particles ...	3	5	3	12	11	7	11	52
Nuclear structure	5	0	7	9	6	4	6	36
Solid state	16	19	18	13	19	13	12	110
Physics, general	20	24	27	19	24	29	13	156
Physics, other	9	8	5	7	8	4	7	48
Chemistry	82	56	66	86	89	82	73	534
Analytical	4	3	6	9	9	9	9	49
Inorganic	5	6	5	13	11	5	8	53
Organic	22	16	15	22	24	18	11	128
Nuclear chemistry	2	0	1	1	3	0	1	8
Physical	15	8	14	15	14	13	14	93
Theoretical chemistry ..	1	1	1	1	0	2	0	6
Agricultural and food[8]..	0	1	0	0	2	-	-	3
Pharmaceutical	5	3	1	2	3	2	2	18
Polymer[9].................	0	0	1	2	3	5	0	11
Chemistry, general	27	15	19	19	12	25	26	143
Chemistry, other	1	3	3	2	8	3	2	22
Earth, env & marine sciences	29	28	28	40	32	24	17	198
Mineralogy, petrology[10]..	1	2	2	4	2	2	1	14
Geochemistry[10]...........	4	2	4	3	2	0	1	16
Stratigraphy, sediment .	1	1	1	3	2	2	0	10
Paleontology	1	3	0	0	1	0	1	6
Structural geology	0	1	2	1	0	1	0	5
Geophysics	6	0	-	-	-	-	-	6
Geophysics, solid earth.	-	4	0	1	6	1	3	15
Geomorph & glacial geol.	2	1	0	1	0	0	0	4
Hydrology & water res ..	0	0	1	2	4	1	0	8
Oceanography	4	6	5	6	3	1	4	29
Marine science, other ..	-	-	1	1	1	1	0	4
Meteorology	3	0	-	-	-	-	-	3
Atmospheric phys & chem.[11]	-	1	0	0	0	1	0	2
Atmospheric dynamics[11]...	-	1	0	2	2	0	0	5
Atmospheric sci, other[11].	-	0	2	1	2	1	0	6
Environ science, general	2	2	2	1	1	0	0	8
Environ science, other .	0	0	1	2	1	2	0	6
Applied geology[15]........	1	1	1	2	1	1	0	7
Earth science, general .	0	2	3	8	3	9	6	31
Earth science, other ...	4	1	3	2	1	1	1	13
Engineering	177	109	83	98	107	85	54	713
Aeronaut & astronautical[16]	8	4	1	1	4	[illegible]	4	24
Agricultural	2	0	0	0	2	3	1	8
Biomedical[17].............	5	1	4	5	2	7	4	28
Chemical	22	17	12	7	9	8	4	79
Civil	20	10	9	3	5	5	5	57
Ceramic	2	1	0	0	2	1	0	6
Computer[18]...............	5	8	2	2	3	0	0	20
Electrical	29	19	20	24	25	19	13	149
Electronics	4	3	2	7	3	5	1	25
Industrial	2	2	3	3	4	2	2	18
Nuclear[19]................	5	1	2	5	3	3	4	23
Engineering mechanics ..	12	3	2	4	7	2	3	33
Engineering physics[19]....	1	0	1	0	0	1	0	3
Mechanical	21	17	4	8	13	5	4	72
Metallurgy[20].............	10	10	5	10	2	4	0	41
Systems design[18].........	4	1	0	0	4	1	2	12
Operations research[21]....	8	2	1	5	1	2	1	20
Fuel technology[22]........	1	0	1	0	1	1	0	4
Sanitary & environmental[23]	2	2	2	3	5	1	1	16
Mining	1	0	0	0	0	0	0	1
Materials science[17]......	6	4	5	4	5	5	4	33
Engineering, general ...	3	2	1	5	0	5	0	16
Engineering, other	4	2	6	2	7	3	1	25

See footnotes at end of table.

Table 3. New science and engineering doctorates by subfield and race: 1975-81 - Con.

Other & unknown

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	Total 1975-81
Mathematical sciences	43	42	35	50	40	43	30	283
Algebra	0	2	1	2	3	3	1	12
Analysis & funct. anal[26].	5	1	3	6	7	3	1	26
Geometry	1	2	1	4	1	0	1	10
Logic	2	1	1	1	1	3	0	9
Number theory	1	0	0	0	1	1	1	4
Probability & math stat.[27]	3	5	2	4	4	3	3	24
Topology	5	3	3	5	2	1	4	23
Computing theory	3	5	5	5	0	0	0	18
Computer science[13]	0	0	3	9	9	16	8	45
Operations research[29]	2	3	1	0	2	2	0	10
Applied mathematics	6	3	4	3	3	6	5	30
Mathematics, general	14	15	10	11	6	4	5	65
Mathematics, other	1	2	1	0	1	1	1	7
Life sciences	144	160	138	219	223	226	183	1293
Biological sciences	127	144	123	191	191	201	157	1134
Biochemistry	24	19	20	26	27	43	22	181
Biophysics	6	5	8	8	12	10	3	52
Biometry, biostatistics.	1	1	1	3	2	0	2	10
Anatomy	3	7	4	5	8	6	4	37
Cytology[30]	1	5	1	1	5	4	2	19
Embryology	2	0	0	0	2	1	0	5
Immunology[31]	3	4	2	3	8	9	3	32
Botany	4	5	5	4	7	5	6	36
Ecology	1	6	6	1	12	8	8	42
Hydrobiology[8]	1	0	0	0	1	-	-	2
Microbiology & bacteriol[32]	12	14	13	23	21	16	16	115
Animal physiology[33]	12	6	10	19	10	28	11	96
Plant physiology[33]	1	2	2	3	1	2	4	15
Zoology	11	10	10	7	19	8	5	70
Genetics	2	4	4	7	3	4	5	29
Entomology	7	4	6	1	3	6	5	32
Molecular biology[17]	2	4	5	13	9	12	10	55
Nutrition/dietetics[11]	-	2	3	7	4	2	8	26
Parasitology[9]	-	0	0	0	1	0	1	2
Pathology	2	7	6	5	4	6	4	34
Pharmacology	4	10	4	19	14	14	13	78
Biological sci, general.	14	23	11	26	11	8	19	112
Biological sci, other	14	6	2	10	7	9	6	54
Agricultural sciences	17	16	15	28	32	25	26	159
Agronomy	1	3	4	5	7	5	2	27
Animal husbandry[17]	0	0	1	0	0	1	1	3
Food sci & technology	4	2	2	4	2	3	4	21
Fish & wildlife	2	3	1	1	3	1	3	14
Forestry	1	0	2	7	3	1	1	15
Horticulture	0	1	2	2	2	1	2	10
Soils & soil science[35]	2	0	1	1	4	3	3	14
Animal sci & nutrition[36]	5	4	2	3	8	6	3	31
Phytopathology	1	1	0	4	1	3	2	12
Agriculture, general	0	0	0	1	0	0	0	1
Agriculture, other	1	2	0	0	2	1	5	11
Social sciences	168	161	131	158	164	120	119	1021
Anthropology	27	24	22	27	34	23	25	182
Archeology	0	1	1	1	1	2	1	7
Hist & phil of science[37].	2	5	1	0	6	2	3	19
Linguistics	16	7	6	13	5	7	5	59
Sociology	31	32	29	30	29	20	18	189
Economics	41	42	28	38	50	30	36	265
Econometrics	0	3	3	1	1	1	0	9
Agricultural economics[17].	4	7	2	2	6	7	5	33
Statistics[38]	1	2	1	1	1	0	0	6
Geography	5	4	10	9	5	6	6	45
Pol sci, public admin[39].	41	5	0	0	0	0	0	46
Political science[39]	0	29	28	36	26	22	20	161
Psychology	109	88	103	152	136	118	82	788
Clinical	12	18	15	27	43	31	29	175
Counseling & guidance	6	1	10	13	12	10	3	55
Developmental & gerontol	3	1	6	8	9	9	5	41
Educational	5	5	1	7	8	6	5	37
School	4	2	2	6	1	2	4	21
Experimental[40]	8	12	13	10	14	12	3	72
Comparative[40]	2	1	0	0	2	1	0	6
Physiological[40]	1	5	5	5	0	3	1	20
Industrial & personnel	2	1	1	1	2	3	3	13
Personality	5	1	2	4	4	4	1	21
Psychometrics	2	1	0	1	1	0	0	5
Social	7	8	6	11	4	2	3	41
Psychology, general	44	30	37	50	25	26	24	236
Psychology, other	8	2	5	9	11	9	1	45
Total, non-sci & engineering[42].	560	568	523	669	672	502	456	3950
Total, all fields	1379	1293	1189	1557	1553	1282	1082	9335

See footnotes at end of table.

SOURCES: National Science Foundation and National Research Council

1/ "Astronomy/astrophysics" was included in the field taxonomy until 1969 when separate entries were introduced. The dash (-) signifies that data are not available for a given time period. For example, data for "astronomy/astrophysics" are not available after 1969, while data for "astronomy" or "astrophysics" are not available prior to 1969. A zero (0) signifies that no doctorates were produced.

2/ This subfield was originally called "Electricity and Magnetism." In 1966 the name was changed to "Electromagnetism." In 1980 this subfield was deleted from the taxonomy.

3/ "Thermal physics" was originally shown as one subfield, "Mechanics and Heat." In 1960 this subfield was separated into "Mechanics" and "Heat (Thermal)." The latter was subsequently changed to "Thermal Phenomena" in 1963 and then to "Thermal Physics" in 1967. "Mechanics" was deleted from the taxonomy in 1977.

4/ "Plasma physics" was not added until 1969.

5/ This subfield was added in 1960 under the original name of "Heat (Thermal)." See footnote 3 for more information.

6/ This subfield was deleted in 1962.

7/ This subfield was deleted in 1962, but some entries appear for 1962 and 1963 due to use of outdated forms by some institutions.

8/ This subfield was deleted in 1980.

9/ This subfield was introduced in 1973.

10/ This subfield was originally specified as "Geochemistry." In 1963 the field was expanded to include "Mineralogy" and "Petrology."

11/ This subfield was introduced in 1976.

12/ This subfield was originally listed as "Hydrology." "Water Resources" was added to the title in 1977.

13/ This subfield was introduced in 1977.

14/ This subfield was deleted in 1976.

15/ In 1960 "Geophysical Engineering" and "Geological Engineering" were merged into "Geo-engineering." "Geo-engineering" became "Applied Geology, Geological engineering, Economic Geology, and Petroleum Engineering in 1962 and was split into "Applied Geology, Geological Engineering and Economic Geology" and "Fuel Technology and Petroleum Engineering" in 1969.

16/ This subfield was originally named "Aeronautical Engineering." In 1966 the term "Astronautical" was added.

17/ Thia subfield was introduced in 1969.

18/ This subfield was introduced in 1975.

19/ In 1961 "Nuclear Engineering" was deleted from the taxonomy, and previous cases were added to "Engineering Physics." In 1969 "Nuclear Engineering" was reinstated in the taxonomy.

20/ This subfield was originally specified as "Metallurgy and Metallurgical Engineering." The term "Physical" was introduced in 1967.

21/ This subfield was introduced in 1972.

22/ This subfield's full title is "Fuel Technology and Petroleum Engineering." It was added to the Engineering section of the taxonomy in 1972. (See also footnote 15.)

23/ This subfield was originally called "Sanitary Engineering." The term "Environmental" was added in 1977.

24/ This subfield was deleted from the taxonomy in 1969.

25/ "Mining Engineering" was originally deleted in 1961 but was restored to the taxonomy in 1969.

26/ This subfield was specified as "Analysis" through 1967. "Functional Analysis" was added in 1968.

27/ "Math Statistics" was deleted from the taxonomy in 1969 but was restored in 1972.

28/ This subfield was deleted in 1967.

29/ This subfield was introduced in 1973.

30/ This subfield was introduced in 1962.

31/ This subfield was introduced in 1972.

32/ This subfield was originally called "Microbiology." "Bacteriology" was added in 1970.

33/ In 1962 "Animal and Plant Physiology" was separated into "Animal Physiology" and "Plant Physiology."

34/ This subfield was deleted in 1960.

35/ This subfield was added in 1969 under the name of "Range Management." In 1972 the title was changed to "Soils and Soils Science." Previous cases under "Range Management" were converted to "Agriculture, Other."

36/ This subfield was introduced as "Animal Sciences" in 1973. The title was changed to "Animal Science and Animal Nutrition" in 1977.

37/ This subfield was introduced in 1971.

38/ This subfield was introduced in 1967.

39/ "Political Science, Public Administration" was split into two separate subfields in 1976.

40/ "Experimental, Comparative and Physiological Psychology" was split into three separate subfields in 1962.

41/ This subfield was deleted from the published taxonomy in 1962 but "write-in" responses were coded until 1969. Beginning in 1969, write-responses were included with "Psychology, Other."

42/ Non-science/engineering doctorates in this table include doctorates whose field of specialization is unknown.

Table 4. Median age of new science and engineering doctorates by major field and sex: 1960-81

Total, male and female

	Year of doctorate												
Age at PhD	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, sci/eng	30.30	30.31	30.30	30.07	30.02	29.76	29.62	29.48	29.45	29.24	29.75	29.13	29.30
Physical sciences.	28.47	28.73	28.64	28.46	28.34	28.31	28.21	28.11	28.08	28.03	28.27	28.19	28.28
Physics & astron	29.07	29.20	29.25	28.96	28.72	28.74	28.61	28.58	28.62	28.46	28.73	28.58	28.80
Chemistry	28.18	28.53	28.21	28.16	28.10	28.00	27.90	27.73	27.55	27.61	27.92	27.88	27.92
Earth & env sci ..	30.14	30.76	30.97	30.19	30.91	30.40	30.54	30.42	30.30	30.61	30.50	30.51	30.45
Engineering	30.17	29.78	29.83	29.63	29.73	29.66	29.74	29.88	29.80	29.63	29.76	29.58	29.86
Chemical	29.00	28.47	28.53	28.09	28.67	28.35	28.18	28.46	28.16	28.31	28.36	28.58	28.54
Civil	31.30	31.00	31.06	30.66	30.66	31.35	31.29	30.88	30.52	30.94	30.94	30.26	31.03
Electrical	30.58	29.59	29.81	29.89	29.73	29.49	29.85	29.73	29.92	29.60	29.77	29.23	29.46
Mechanical	30.70	30.79	30.06	29.94	30.00	30.09	29.97	30.42	30.09	29.92	30.10	30.27	30.33
Mathematical sci .	29.79	29.95	29.28	29.20	28.63	28.21	28.03	28.14	28.01	28.03	28.38	28.06	28.37
Life sciences	30.97	30.74	30.75	30.87	30.76	30.56	30.41	30.22	29.90	29.50	30.36	29.20	29.39
Agricultural sci	30.91	30.90	31.01	31.14	32.02	31.45	31.88	31.89	31.64	30.56	31.35	30.18	30.77
Biological sci .	30.99	30.70	30.66	30.76	30.32	30.35	30.00	29.83	29.49	29.31	30.09	29.02	29.14
Social sciences ..	33.14	32.76	33.02	32.86	32.22	32.33	32.20	31.86	31.71	31.36	32.20	31.07	30.83
Psychology	31.00	31.37	31.61	30.76	30.88	30.54	30.17	30.00	29.87	29.23	30.39	28.96	28.92
Total, non-sci/eng[1].	35.84	35.73	35.38	35.33	35.18	35.26	35.63	35.21	35.33	34.95	35.32	34.64	34.51
Total, all fields ..	31.83	31.76	31.77	31.73	31.66	31.47	31.39	31.21	31.11	30.85	31.39	30.74	30.78
Male													
Total, sci/eng	30.22	30.22	30.21	29.99	29.93	29.72	29.57	29.44	29.43	29.21	29.69	29.11	29.27
Physical sciences.	28.47	28.71	28.66	28.47	28.34	28.31	28.22	28.12	28.07	28.03	28.27	28.17	28.29
Physics & astron	29.09	29.18	29.24	28.96	28.68	28.72	28.62	28.60	28.62	28.46	28.73	28.57	28.80
Chemistry	28.15	28.49	28.24	28.16	28.11	28.00	27.90	27.71	27.50	27.57	27.91	27.84	27.91
Earth & env sci ..	30.11	30.72	30.88	30.19	30.90	30.41	30.54	30.45	30.34	30.59	30.50	30.47	30.46
Engineering	30.16	29.78	29.82	29.61	29.74	29.66	29.73	29.88	29.80	29.63	29.75	29.57	29.87
Chemical	29.00	28.47	28.50	28.06	28.63	28.35	28.16	28.50	28.15	28.32	28.36	28.58	28.53
Civil	31.20	31.00	31.06	30.60	30.63	31.35	31.29	30.86	30.52	30.94	30.92	30.27	31.01
Electrical	30.62	29.63	29.79	29.91	29.76	29.48	29.86	29.73	29.92	29.58	29.77	29.22	29.46
Mechanical	30.70	30.75	30.06	29.94	30.02	30.09	29.96	30.42	30.09	29.92	30.10	30.25	30.33
Mathematical sci .	29.73	29.88	29.26	29.30	28.55	28.18	27.98	28.09	28.00	28.01	28.35	28.08	28.38
Life sciences	30.92	30.73	30.70	30.85	30.75	30.61	30.50	30.28	30.06	29.58	30.41	29.30	29.43
Agricultural sci	30.89	30.88	30.98	31.11	32.04	31.49	31.92	31.88	31.69	30.58	31.36	30.17	30.77
Biological sci .	30.93	30.67	30.59	30.74	30.27	30.39	30.05	29.87	29.62	29.37	30.12	29.12	29.14
Social sciences ..	32.95	32.67	32.77	32.72	32.05	32.27	32.03	31.66	31.55	31.16	32.03	31.01	30.68
Psychology	30.73	31.06	31.34	30.56	30.57	30.11	29.92	29.77	29.65	28.95	30.13	28.78	28.66
Total, non-sci/eng[1].	35.27	35.04	34.74	34.70	34.68	34.73	35.11	34.74	34.81	34.48	34.79	34.18	34.07
Total, all fields ..	31.54	31.46	31.48	31.44	31.37	31.23	31.12	30.93	30.87	30.59	31.12	30.50	30.52
Female													
Total, sci/eng	31.68	32.19	31.94	31.30	31.52	30.50	30.34	30.21	29.85	29.76	30.61	29.25	29.59
Physical sciences.	29.50	29.29	28.11	28.31	28.36	28.18	27.98	28.00	28.42	28.14	28.24	28.60	28.12
Physics & astron	•	•	•	•	•	29.25	•	28.00	29.50	28.75	28.92	28.92	28.93
Chemistry	29.67	29.14	27.50	28.23	27.95	27.97	27.92	28.00	28.33	28.00	28.12	28.50	27.95
Earth & env sci ..	•	•	•	•	•	•	•	•	•	33.00	31.00	•	•
Engineering	•	•	•	•	•	•	•	•	•	•	30.39	•	•
Chemical	•	•	•	•	•	•	•	•	•	•	•	•	•
Civil	•	•	•	•	•	•	•	•	•	•	•	•	•
Electrical	•	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical	•	•	•	•	•	•	•	•	•	•	•	•	•
Mathematical sci .	•	•	29.75	27.75	30.00	29.00	29.17	29.67	28.19	28.31	28.94	27.88	28.20
Life sciences	31.46	31.00	31.42	31.08	30.82	30.00	29.64	29.61	28.89	29.04	29.83	28.54	29.20
Agricultural sci	•	•	•	•	•	•	•	•	•	•	30.50	30.33	30.75
Biological sci .	31.42	30.95	31.29	30.96	30.91	29.90	29.68	29.52	28.91	29.00	29.79	28.49	29.16
Social sciences ..	35.64	33.75	36.14	34.50	35.75	33.75	34.00	34.43	33.39	34.32	34.32	31.46	31.98
Psychology	32.90	33.44	34.00	32.13	32.92	33.63	31.35	31.11	31.18	30.69	32.00	29.60	29.88
Total, non-sci/eng[1].	39.19	39.90	39.81	39.99	38.76	38.83	38.61	38.19	37.90	37.57	38.58	37.19	36.94
Total, all fields ..	36.15	36.56	36.17	36.03	35.75	34.98	34.73	34.65	34.01	33.69	34.97	33.06	32.96

See footnotes at end of table.

Table 4. Median age of new science and engineering doctorates by major field and sex: 1960-81 - Con

Age at PhD	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, male and female													
Total, sci/eng	29.61	29.91	29.96	29.85	29.86	29.97	30.07	30.16	29.78	30.19	30.31	30.25	29.82
Physical sciences.	28.61	28.87	28.85	28.68	28.79	28.99	29.03	28.60	28.64	28.74	28.59	28.66	28.49
Physics & astron	28.98	29.21	29.27	29.31	29.14	29.47	29.55	29.20	29.11	29.43	29.10	29.25	29.00
Chemistry	28.29	28.48	28.46	28.31	28.52	28.57	28.67	28.23	28.29	28.27	28.28	28.28	28.16
Earth & env sci ..	30.53	30.52	30.96	30.69	30.23	30.49	30.47	30.25	30.51	30.82	30.92	30.87	30.55
Engineering	30.08	30.39	30.31	30.20	30.20	30.01	30.19	30.32	30.11	30.26	30.54	30.40	30.03
Chemical	28.59	29.10	29.03	29.25	29.10	29.05	29.19	28.42	28.89	29.00	29.19	29.08	28.70
Civil	30.68	31.54	31.26	31.50	31.93	31.30	30.89	31.36	31.16	31.93	31.37	31.61	31.13
Electrical	29.89	30.15	30.07	29.79	30.04	29.92	29.74	30.32	29.83	29.77	30.11	29.95	29.82
Mechanical	30.55	30.74	30.79	30.44	30.56	30.65	30.75	30.39	30.55	30.75	30.59	30.68	30.39
Mathematical sci .	28.92	29.10	29.17	29.09	29.13	29.04	29.40	29.50	28.94	29.33	29.38	29.36	28.81
Life sciences	29.70	29.98	29.90	29.72	29.72	29.75	29.78	29.78	29.69	29.73	29.75	29.74	29.89
Agricultural sci	31.09	31.24	31.19	30.97	31.44	31.17	31.19	31.17	31.07	31.35	31.50	31.41	31.20
Biological sci .	29.41	29.67	29.56	29.43	29.39	29.42	29.46	29.48	29.40	29.38	29.43	29.41	29.57
Social sciences ..	30.77	31.09	31.35	31.43	31.47	31.80	31.58	32.15	31.37	32.18	32.30	32.24	31.67
Psychology	29.28	29.45	29.44	29.51	29.57	29.92	30.05	30.55	29.63	30.61	31.37	31.02	30.01
Total, non-sci/eng[1].	34.30	34.14	34.03	34.30	34.34	34.53	34.70	34.93	34.44	35.35	35.52	35.44	34.80
Total, all fields ..	31.08	31.27	31.41	31.49	31.59	31.59	31.67	31.92	31.37	32.18	32.37	32.27	31.48
Male													
Total, sci/eng	29.63	29.93	30.00	29.90	29.87	29.99	30.06	30.11	29.77	30.14	30.22	30.18	29.79
Physical sciences.	28.62	28.89	28.87	28.72	28.84	29.03	29.11	28.62	28.66	28.84	28.59	28.71	28.50
Physics & astron	28.99	29.22	29.25	29.36	29.20	29.49	29.57	29.20	29.12	29.45	29.07	29.25	29.00
Chemistry	28.28	28.49	28.49	28.33	28.56	28.63	28.76	28.23	28.30	28.35	28.26	28.30	28.16
Earth & env sci ..	30.59	30.60	30.95	30.74	30.21	30.65	30.48	30.34	30.55	30.87	31.06	30.96	30.58
Engineering	30.09	30.40	30.32	30.22	30.21	30.04	30.21	30.36	30.12	30.30	30.62	30.45	30.04
Chemical	28.59	29.10	29.02	29.24	29.10	29.11	29.19	28.42	28.89	29.04	29.26	29.13	28.70
Civil	30.69	31.59	31.29	31.55	31.94	31.41	30.89	31.35	31.18	31.93	31.39	31.63	31.14
Electrical	29.89	30.17	30.08	29.85	30.08	29.94	29.75	30.36	29.85	29.81	30.14	29.98	29.83
Mechanical	30.57	30.76	30.80	30.48	30.51	30.66	30.75	30.42	30.56	30.81	30.64	30.73	30.40
Mathematical sci .	28.94	29.12	29.21	29.08	29.13	29.04	29.41	29.54	28.94	29.22	29.34	29.28	28.78
Life sciences	29.82	30.12	30.05	29.87	29.86	29.87	29.80	29.88	29.80	29.80	29.81	29.80	29.99
Agricultural sci	31.10	31.31	31.20	31.01	31.52	31.23	31.17	31.44	31.11	31.54	31.66	31.60	31.25
Biological sci .	29.50	29.78	29.72	29.57	29.46	29.48	29.42	29.48	29.46	29.36	29.42	29.39	29.64
Social sciences ..	30.72	31.08	31.40	31.48	31.47	31.75	31.45	32.01	31.31	32.09	32.21	32.15	31.58
Psychology	29.10	29.33	29.40	29.50	29.47	29.89	30.10	30.45	29.50	30.44	31.16	30.82	29.83
Total, non-sci/eng[1].	33.89	33.82	33.80	34.01	34.16	34.27	34.42	34.65	34.12	34.89	35.03	34.97	34.40
Total, all fields ..	30.86	31.09	31.27	31.30	31.34	31.32	31.34	31.55	31.12	31.73	31.80	31.77	31.18
Female													
Total, sci/eng	29.47	29.68	29.61	29.52	29.80	29.87	30.12	30.35	29.81	30.37	30.67	30.51	30.07
Physical sciences.	28.44	28.60	28.45	28.27	28.21	28.44	28.32	28.45	28.37	28.20	28.58	28.37	28.34
Physics & astron	28.44	29.06	29.79	28.60	28.05	29.12	29.21	29.21	28.91	29.14	29.58	29.32	28.98
Chemistry	28.44	28.42	28.17	28.09	28.26	28.22	28.16	28.21	28.23	27.91	28.35	28.12	28.19
Earth & env sci ..	29.75	28.75	31.13	29.83	30.43	29.19	30.33	29.14	29.85	30.50	29.94	30.14	30.04
Engineering	29.25	29.00	29.10	29.17	29.60	28.18	29.69	29.29	29.19	28.92	29.03	28.98	29.24
Chemical	*	*	*	*	*	*	*	*	28.69	*	*	28.00	28.65
Civil	*	*	*	*	*	*	*	*	29.67	*	*	*	30.14
Electrical	*	*	*	*	*	*	*	*	28.19	*	*	28.90	28.57
Mechanical	*	*	*	*	*	*	*	*	29.42	*	*	*	29.22
Mathematical sci .	28.60	28.72	28.75	29.17	29.13	29.04	29.31	29.37	28.95	30.20	29.62	29.83	29.08
Life sciences	29.01	29.30	29.08	28.97	29.18	29.27	29.72	29.43	29.21	29.48	29.56	29.52	29.36
Agricultural sci	30.75	29.67	31.00	30.38	30.50	30.00	31.42	28.63	30.18	29.85	30.36	30.11	30.19
Biological sci .	28.92	29.28	28.95	28.89	29.12	29.23	29.61	29.48	29.16	29.45	29.46	29.46	29.31
Social sciences ..	31.09	31.14	31.08	31.23	31.47	32.00	32.03	32.74	31.66	32.42	32.63	32.50	32.12
Psychology	29.93	29.95	29.57	29.55	29.87	29.98	29.94	30.77	29.98	30.91	31.67	31.34	30.51
Total, non-sci/eng[1].	36.35	35.32	34.94	35.27	35.02	35.23	35.31	35.47	35.52	36.09	36.54	36.30	36.21
Total, all fields ..	32.86	32.58	32.30	32.46	32.62	32.81	32.93	33.14	32.77	33.49	33.79	33.65	33.26

* Asterisks indicate too few cases (under 20 cases) present within a cell to compute a median.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years

Total, science & engineering

Country of citizenship	Year of doctorate 1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	6060	11635	18596	18331	3579	3755	61956
Canada	713	1227	1590	948	150	153	4781
Mexico & Central America	85	187	249	345	71	96	1033
Mexico	56	129	179	253	57	74	748
Cuba & islands	20	107	132	123	21	22	425
South America	136	427	1011	1244	263	286	3367
Argentina	22	75	208	115	25	26	471
Brazil	29	103	255	478	120	134	1119
Chile	31	81	155	187	25	34	513
Columbia	21	58	143	144	22	19	407
Europe	713	1381	2535	2070	351	394	7444
Belgium	20	58	129	75	10	20	312
England	232	446	722	529	85	97	2111
France	33	86	230	188	14	24	575
Fed Rep Ger/Ger Dem Rep[1]..	74	160	278	162	27	33	734
Greece	87	170	259	299	61	62	938
Italy	27	55	102	78	15	17	294
East Asia	984	2656	4880	4642	829	868	14859
China (including Taiwan)[2].	511	1706	2985	2355	431	448	8436
Hong Kong	3	63	240	481	85	93	965
Japan, Okinawa, Ryukyus ..	189	276	501	421	66	74	1527
Korea	190	421	706	693	124	129	2263
Thailand	54	102	235	455	72	79	997
West Asia	1527	3056	4880	4260	885	902	15510
India	991	1844	2848	2123	370	375	8551
Iran	74	192	415	589	204	189	1663
Iraq	71	146	153	82	27	26	505
Israel	135	288	424	420	63	91	1421
Lebanon	32	78	103	105	18	18	354
Turkey	42	123	335	364	62	48	974
Pakistan	98	240	267	152	40	25	822
Australasia	274	573	823	579	118	125	2492
Australia	102	184	304	184	44	36	854
Indonesia, Republic of ...	33	83	93	110	20	39	378
New Zealand	37	88	112	90	23	13	363
Philippines	102	217	312	195	30	37	893
Africa	247	742	1134	1147	308	365	3943
Egypt	151	479	392	213	73	77	1385
Nigeria	0	0	106	331	84	121	642
Country unknown	1361	1279	1362	2973	583	544	8102

See footnotes at end of table.

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Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Physical sciences

Country of citizenship	Year of doctorate						
	1960-64	1960-69	1970-74	1970-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	1256	2231	3413	3099	577	584	11060
Canada	108	176	213	97	19	18	631
Mexico & Central America	13	22	36	37	5	4	117
Mexico	11	18	24	26	4	3	86
Cuba & islands	4	12	21	15	3	4	59
South America	28	58	150	153	27	28	444
Argentina	6	14	50	16	6	3	95
Brazil	6	20	30	35	7	8	106
Chile	8	8	26	35	5	5	87
Columbia	1	3	15	18	3	1	41
Europe	161	273	469	349	56	66	1374
Belgium	3	11	19	10	1	1	45
England	50	84	135	81	12	19	381
France	5	16	39	20	2	3	85
Fed Rep Ger/Ger Dem Rep[1]..	23	39	49	26	5	7	149
Greece	26	46	63	66	13	3	217
Italy	3	11	30	17	1	5	67
East Asia	263	723	1282	1040	169	161	3638
China (including Taiwan)[2].	126	464	831	636	104	96	2257
Hong Kong	3	32	106	148	23	20	332
Japan, Okinawa, Ryukyus ..	54	83	111	76	6	11	341
Korea	66	104	161	113	23	24	491
Thailand	6	6	21	32	10	4	79
West Asia	312	554	734	682	166	161	2609
India	221	404	484	424	91	91	1715
Iran	13	21	59	70	29	30	222
Iraq	12	19	17	1	0	1	50
Israel	21	31	33	50	5	8	148
Lebanon	11	15	23	15	3	4	71
Turkey	6	19	37	38	12	3	115
Pakistan	15	22	27	26	11	3	104
Australasia	37	76	122	59	9	12	215
Australia	10	16	30	18	3	3	80
Indonesia, Republic of ...	9	15	19	6	2	2	53
New Zealand	4	19	14	10	2	0	49
Philippines	14	25	59	25	2	7	32
Africa	29	88	103	92	16	22	350
Egypt	23	62	38	21	3	7	154
Nigeria	0	0	5	23	6	4	38
Country unknown	301	249	283	575	107	108	1623

See footnotes at end of table.

Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Earth, environmental, and marine sciences

Country of citizenship	Year of doctorate 1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	220	393	580	578	106	100	1977
Canada	65	104	90	57	8	7	331
Mexico & Central America	0	1	4	15	7	5	32
Mexico	0	1	4	13	7	5	30
Cuba & islands	0	1	4	7	0	1	13
South America	7	11	35	46	14	6	119
Argentina	1	3	5	3	1	1	14
Brazil	0	1	7	15	7	1	31
Chile	1	3	4	7	1	1	17
Columbia	1	2	2	6	1	1	13
Europe	26	62	90	74	7	21	280
Belgium	0	2	6	6	0	3	17
England	15	28	30	27	4	7	111
France	1	3	8	10	1	2	25
Fed Rep Ger/Ger Dem Rep[1]..	1	11	5	3	0	2	22
Greece	0	4	0	6	0	2	12
Italy	2	2	4	1	0	0	9
East Asia	15	37	98	131	28	11	320
China (including Taiwan)[2].	8	27	71	76	20	9	211
Hong Kong	0	0	0	7	1	2	10
Japan, Okinawa, Ryukyus ..	5	4	9	13	0	0	31
Korea	2	2	13	27	3	0	47
Thailand	0	1	4	6	2	0	13
West Asia	35	77	133	103	16	10	374
India	23	34	58	44	2	7	168
Iran	5	8	12	9	10	1	45
Iraq	0	11	4	0	0	0	15
Israel	4	9	20	15	2	0	50
Lebanon	0	0	0	2	0	0	2
Turkey	1	4	17	9	2	0	33
Pakistan	0	6	8	3	0	1	18
Australasia	17	34	47	32	4	9	143
Australia	7	15	28	18	4	3	75
Indonesia, Republic of ...	2	3	5	2	0	1	13
New Zealand	4	12	6	4	0	4	30
Philippines	4	4	8	8	0	1	25
Africa	6	31	46	30	9	17	139
Egypt	3	21	14	6	0	1	45
Nigeria	0	0	4	10	4	8	26
Country unknown	49	35	33	83	13	13	226

See footnotes at end of table.

Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Engineering

Country of citizenship	Year of doctorate 1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	1326	3142	5488	5765	1150	1241	18112
Canada	97	238	191	86	20	17	649
Mexico & Central America	9	36	53	85	17	24	224
Mexico	7	26	47	73	13	21	187
Cuba & islands	3	19	20	14	2	0	58
South America	24	90	202	276	52	73	717
Argentina	0	8	16	21	10	6	61
Brazil	10	30	81	114	24	36	295
Chile	4	17	31	30	3	10	95
Columbia	3	11	35	36	3	3	91
Europe	159	345	688	514	88	103	1897
Belgium	7	20	43	29	4	5	108
England	35	79	112	63	19	16	324
France	16	35	96	63	6	8	224
Fed Rep Ger/Ger Dem Rep[1]..	11	37	74	35	5	8	170
Greece	19	48	98	109	22	28	324
Italy	7	13	29	10	2	2	63
East Asia	310	958	1670	1569	304	364	5175
China (including Taiwan)[2].	221	729	1111	862	174	222	3319
Hong Kong	0	12	46	142	27	28	255
Japan, Okinawa, Ryukyus ..	39	72	199	139	27	31	507
Korea	36	114	229	250	41	50	720
Thailand	8	22	40	140	20	23	253
West Asia	340	864	1846	1857	357	372	5636
India	203	525	1242	1039	184	176	3369
Iran	26	60	169	257	79	74	665
Iraq	10	30	40	24	6	4	114
Israel	51	89	102	137	21	33	433
Lebanon	2	20	31	33	6	8	100
Turkey	23	73	152	193	31	30	502
Pakistan	9	40	49	47	8	8	161
Australasia	30	76	113	68	14	9	310
Australia	12	26	49	20	4	4	115
Indonesia, Republic of ...	7	9	14	18	4	4	56
New Zealand	0	11	13	7	4	0	35
Philippines	11	30	37	23	2	1	104
Africa	50	149	301	307	96	104	1007
Egypt	39	106	170	121	39	41	516
Nigeria	0	0	15	73	20	31	139
Country unknown	304	367	404	989	200	175	2439

See footnotes at end of table.

Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Mathematical sciences

Country of citizenship	Year of doctorate						
	1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	349	668	1192	1212	257	289	3967
Canada	36	92	110	68	15	13	334
Mexico & Central America	4	5	20	30	2	8	69
Mexico	4	5	18	28	2	7	64
Cuba & islands	2	2	8	4	0	2	18
South America	15	35	90	106	19	21	286
Argentina	3	10	39	19	4	1	76
Brazil	5	14	27	41	7	12	106
Chile	3	6	6	18	2	3	38
Columbia	2	2	9	9	2	3	27
Europe	48	107	218	197	42	52	664
Belgium	2	2	10	2	0	3	19
England	13	26	42	30	6	6	123
France	5	16	33	27	1	2	84
Fed Rep Ger/Ger Dem Rep[1]..	6	17	23	22	4	3	75
Greece	3	10	15	21	4	5	58
Italy	3	5	5	16	5	5	39
East Asia	59	137	304	332	61	63	956
China (including Taiwan)[2].	31	82	191	203	40	41	588
Hong Kong	0	7	29	47	4	8	95
Japan, Okinawa, Ryukyus ..	15	14	26	27	7	4	93
Korea	11	23	32	33	6	10	115
Thailand	1	4	3	2	1	0	11
West Asia	106	173	268	240	51	64	902
India	72	114	175	108	17	30	516
Iran	2	12	16	31	11	12	84
Iraq	8	7	3	3	0	0	21
Israel	14	23	30	43	8	14	132
Lebanon	0	2	7	14	0	0	23
Turkey	0	1	17	15	2	3	38
Pakistan	5	6	5	2	4	0	22
Australasia	10	29	49	20	10	10	128
Australia	1	15	23	7	5	4	55
Indonesia, Republic of ...	2	4	2	1	0	2	11
New Zealand	3	8	15	8	3	4	41
Philippines	4	2	9	4	1	0	20
Africa	4	10	44	40	9	15	122
Egypt	1	4	10	9	5	3	32
Nigeria	0	0	4	12	0	3	19
Country Unknown	65	78	81	175	48	41	488

See footnotes at end of table.

Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Life sciences

Country of citizenship	Year of doctorate 1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	1780	3185	4229	3831	778	769	14572
Canada	248	307	387	195	36	26	1199
Mexico & Central America	51	100	88	115	24	32	410
Mexico	30	71	55	70	20	24	270
Cuba & islands	6	43	33	33	3	5	123
South America	45	141	328	386	96	94	1090
Argentina	6	14	39	17	2	8	86
Brazil	5	16	60	162	47	48	338
Chile	12	29	58	67	10	6	182
Columbia	13	29	59	40	7	6	154
Europe	174	301	448	365	68	57	1413
Belgium	3	12	21	7	0	0	43
England	60	116	172	127	19	20	514
France	1	5	16	16	0	3	41
Fed Rep Ger/Ger Dem Rep[1]..	16	20	33	22	6	4	101
Greece	22	40	37	54	12	8	173
Italy	7	4	10	11	3	1	36
East Asia	185	528	966	943	152	161	2935
China (including Taiwan)[2].	85	323	607	452	71	61	1599
Hong Kong	0	9	48	103	21	25	206
Japan, Okinawa, Ryukyus ..	42	43	50	47	7	7	196
Korea	26	87	102	100	14	20	349
Thailand	22	48	105	165	21	31	392
West Asia	505	899	1056	660	141	131	3392
India	361	551	592	307	45	40	1896
Iran	13	61	80	96	36	31	317
Iraq	29	52	72	44	19	20	236
Israel	18	59	72	39	6	8	202
Lebanon	9	25	16	18	2	2	72
Turkey	8	7	28	35	7	4	89
Pakistan	37	103	114	42	10	6	312
Australasia	109	253	297	191	40	41	931
Australia	48	79	91	35	14	6	273
Indonesia, Republic of ...	5	27	39	53	4	18	146
New Zealand	15	25	34	27	6	3	110
Philippines	41	122	132	76	16	14	401
Africa	94	310	318	327	105	122	1276
Egypt	44	208	94	36	19	14	415
Nigeria	0	0	35	92	38	46	1211
Country Unknown	363	303	308	616	113	100	1803

See footnotes at end of table.

Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Social sciences

Country of citizenship	Year of doctorate 1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship	898	1688	3084	3210	590	645	10115
Canada	96	216	396	289	30	43	1070
Mexico & Central America	6	20	39	51	13	18	147
Mexico	3	6	24	36	8	9	86
Cuba & islands	5	26	41	35	12	8	127
South America	14	77	182	241	48	55	617
Argentina	4	23	51	36	2	7	123
Brazil	3	16	46	101	26	27	219
Chile	3	15	24	26	4	7	79
Columbia	1	9	20	30	3	3	66
Europe	114	243	522	481	68	76	1504
Belgium	5	11	29	19	5	5	74
England	45	95	194	158	19	21	532
France	5	10	35	48	3	6	107
Fed Rep Ger/Ger Dem Rep[1]	12	26	71	42	4	7	162
Greece	14	20	42	40	7	15	138
Italy	4	18	19	22	2	4	69
East Asia	135	249	514	583	105	102	1688
China (including Taiwan)[2]	36	72	143	114	18	15	398
Hong Kong	0	2	10	25	7	9	53
Japan, Okinawa, Ryukyus	26	51	103	113	17	21	331
Korea	47	89	164	157	36	24	517
Thailand	16	20	58	107	17	21	239
West Asia	190	426	714	609	127	139	2205
India	93	199	264	190	29	28	803
Iran	12	26	63	104	25	33	263
Iraq	11	25	17	10	2	0	65
Israel	21	47	112	85	16	18	299
Lebanon	10	15	23	20	6	4	78
Turkey	1	14	73	61	5	7	161
Pakistan	27	59	59	28	6	6	185
Australasia	61	88	166	168	40	38	561
Australia	19	25	69	68	14	14	209
Indonesia, Republic of	8	25	12	29	10	12	96
New Zealand	9	10	28	30	7	2	86
Philippines	25	28	56	41	9	10	169
Africa	55	141	296	328	67	83	970
Egypt	36	70	64	18	6	11	205
Nigeria	0	0	37	111	14	29	191
Country Unknown	222	202	214	425	80	83	1226

See footnotes at end of table.

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Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Psychology

Country of citizenship	Year of doctorate 1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	231	328	610	636	121	127	2053
Canada	63	94	203	156	22	29	567
Mexico & Central America	2	3	9	12	3	5	34
Mexico	1	2	7	7	3	5	25
Cuba & islands	0	4	5	15	1	2	27
South America	3	15	24	36	7	9	94
Argentina	2	3	8	3	0	0	16
Brazil	0	6	4	10	2	2	24
Chile	0	3	6	4	0	2	15
Columbia	0	2	3	5	3	2	15
Europe	31	50	100	90	22	19	312
Belgium	0	0	1	2	0	3	6
England	14	18	37	43	6	8	126
France	0	1	3	4	1	0	9
Fed Rep Ger/Ger Dem Rep[1] ..	5	10	23	12	3	2	55
Greece	3	2	4	3	3	1	16
Italy	1	2	5	1	2	0	11
East Asia	17	24	46	44	10	6	147
China (including Taiwan)[2].	4	9	31	12	4	4	64
Hong Kong	0	1	1	9	2	1	14
Japan, Okinawa, Ryukyus ..	8	9	3	6	2	0	28
Korea	2	2	5	13	1	1	24
Thailand	1	1	4	3	1	0	10
West Asia	39	63	129	109	27	25	392
India	18	17	33	11	2	3	84
Iran	3	4	16	22	14	8	67
Iraq	1	2	0	0	0	1	4
Israel	6	30	55	51	5	10	157
Lebanon	0	1	3	3	1	0	8
Turkey	3	5	11	13	3	1	36
Pakistan	5	4	5	4	1	1	20
Australasia	10	17	29	41	1	6	104
Australia	5	8	14	18	0	2	47
Indonesia, Republic of ...	0	0	2	1	0	0	3
New Zealand	2	3	2	4	1	0	12
Philippines	3	6	11	18	0	4	42
Africa	9	13	26	23	6	2	79
Egypt	5	8	2	2	1	0	18
Nigeria	0	0	6	10	2	0	18
Country Unknown	57	45	39	110	22	24	297

See footnotes at end of table.

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Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Total, non-science & engineering

Country of citizenship	Year of doctorate 1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	1476	3029	5431	6428	1356	1441	19161
Canada	252	606	1113	868	150	128	3117
Mexico & Central America	5	29	40	78	14	15	181
Mexico	2	9	20	46	10	11	98
Cuba & islands	5	51	96	109	21	25	307
South America	19	72	203	332	85	84	795
Argentina	6	20	41	41	4	3	115
Brazil	5	17	28	107	36	42	235
Chile	2	8	28	49	14	7	108
Columbia	0	6	45	45	7	4	107
Europe	180	485	1052	896	150	164	2927
Belgium	3	13	28	25	6	6	81
England	77	193	370	272	41	45	998
France	8	38	133	115	18	21	333
Fed Rep Ger/Ger Dem Rep[1]..	30	88	193	149	24	19	503
Greece	13	29	39	41	11	12	145
Italy	3	16	33	39	4	5	100
East Asia	150	321	619	882	196	174	2342
China (including Taiwan)[2].	45	98	198	180	39	32	592
Hong Kong	1	4	20	51	15	16	107
Japan, Okinawa, Ryukyus ..	36	66	83	91	25	17	318
Korea	32	90	160	196	34	42	554
Thailand	27	31	96	274	67	49	544
West Asia	274	600	1012	1098	240	307	3531
India	131	260	404	344	50	69	1258
Iran	16	26	87	183	69	90	471
Iraq	17	22	38	25	5	12	119
Israel	24	90	183	186	32	38	553
Lebanon	14	27	35	34	5	5	120
Turkey	15	20	52	71	15	10	183
Pakistan	34	99	80	48	11	6	278
Australasia	137	211	410	392	69	100	1319
Australia	36	76	181	211	48	53	605
Indonesia, Republic of ...	11	12	29	27	8	13	100
New Zealand	12	20	52	49	7	7	147
Philippines	78	103	145	101	6	24	457
Africa	104	250	468	758	218	233	2031
Egypt	83	133	120	73	45	37	491
Nigeria	0	0	57	320	74	100	551
Country unknown	350	404	418	1015	213	211	2611

See footnotes at end of table.

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Table 5. Distribution of non-U.S. citizens awarded science and engineering doctorates by country of citizenship and major field: for selected years - Con.

Total, all fields

	Year of doctorate						
Country of citizenship	1960-64	1965-69	1970-74	1975-79	1980	1981	Total 1960-81
Total, foreign citizenship ..	7536	14644	24027	24759	4935	5196	81117
Canada	965	1833	2703	1816	300	281	7898
Mexico & Central America	90	216	289	423	85	111	1214
Mexico	58	138	199	299	67	85	846
Cuba & islands	25	158	228	232	42	47	732
South America	155	499	1214	1576	348	370	4162
Argentina	28	95	249	156	29	29	586
Brazil	34	120	283	585	156	176	1354
Chile	33	89	183	236	39	41	621
Columbia	21	64	188	189	29	23	514
Europe	893	1866	3587	2966	501	558	10371
Belgium	23	71	157	100	16	26	393
England	309	639	1092	801	126	142	3109
France	41	124	363	303	32	45	908
Fed Rep Ger/Ger Dem Rep[1]..	104	248	471	311	51	52	1237
Greece	100	199	298	340	72	74	1083
Italy	30	71	135	117	19	22	394
East Asia	1134	2977	5499	5524	1025	1042	17201
China (including Taiwan)[2].	556	1804	3183	2535	470	480	9028
Hong Kong	4	67	260	532	100	109	1072
Japan, Okinawa, Ryukyus ..	225	342	584	512	91	91	1845
Korea	222	511	866	889	158	171	2817
Thailand	81	133	331	729	139	128	1541
West Asia	1801	3656	5892	5358	1125	1209	19041
India	1122	2104	3252	2467	420	444	9809
Iran	90	218	502	772	273	279	2134
Iraq	88	168	191	107	32	38	624
Israel	159	378	607	606	95	129	1974
Lebanon	46	105	138	139	23	23	474
Turkey	57	143	387	435	77	58	1157
Pakistan	132	339	347	200	51	31	1100
Australasia	411	784	1233	971	187	225	3811
Australia	138	260	485	395	92	89	1459
Indonesia, Republic of ...	44	95	122	137	28	52	478
New Zealand	49	108	164	139	30	20	510
Philippines	180	320	457	296	36	61	1350
Africa	351	992	1602	1905	526	598	5974
Egypt	234	612	512	286	118	114	1876
Nigeria	0	0	163	651	158	221	1193
Country Unknown	1711	1683	1780	3988	796	755	10713

1/ Respondents reported that "Germany" was their country of citizenship. Distinguishing between the German Democratic Republic and the Federal Republic of Germany is not possible. Most of the respondents probably are citizens of the Federal Republic of Germany.

2/ Respondents reported that "China" was their country of citizenship. Distinguishing between the People's Republic of China and Taiwan is not possible. Most of the respondents probably are citizens of Taiwan.

SOURCES: National Science Foundation and National Research Council

Table 6. Median lapsed time between receipt of baccalaureate and science and engineering doctoral degrees by field: 1960-81

Total, male and female

	Year of doctorate												
Years BA-PhD	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, sci/eng	7.53	7.58	7.42	7.11	6.96	6.98	6.82	6.83	6.77	6.64	6.97	6.57	6.72
Physical sciences ..	6.25	6.37	6.25	6.14	6.03	6.07	5.92	5.89	5.91	5.88	6.02	6.02	6.11
Physics & astron .	6.93	6.97	6.94	6.74	6.55	6.60	6.40	6.44	6.40	6.39	6.54	6.47	6.66
Chemistry	5.87	6.02	5.78	5.75	5.63	5.62	5.53	5.42	5.43	5.44	5.58	5.62	5.67
Earth, env, mar sci.	7.60	7.97	8.13	7.36	7.81	7.60	7.44	7.42	7.51	7.85	7.65	7.71	7.64
Engineering	7.36	7.12	7.07	6.88	6.97	7.03	6.99	7.16	7.07	7.01	7.05	6.93	7.20
Chemical	6.66	6.17	6.31	6.02	6.14	5.99	5.72	6.04	5.85	5.88	6.03	6.31	6.25
Civil	8.06	7.86	8.25	7.46	7.50	8.52	8.19	7.88	7.64	7.97	7.95	7.24	7.90
Electrical	7.48	6.63	6.90	6.71	6.99	6.84	7.16	7.08	7.11	6.91	6.99	6.72	6.91
Mechanical	7.42	7.77	7.27	7.50	7.10	7.37	7.29	7.45	7.34	7.22	7.33	7.35	7.49
Mathematical sci ...	7.24	7.54	7.11	6.79	6.07	6.13	5.80	6.08	5.91	5.88	6.18	6.01	6.29
Life sciences	7.95	7.81	7.70	7.53	7.28	7.32	7.25	7.14	7.02	6.71	7.27	6.47	6.63
Agricultural sci .	7.73	7.67	7.54	7.91	7.92	7.48	8.16	8.01	8.30	7.34	7.81	7.19	7.66
Biological sci ...	8.05	7.85	7.75	7.43	7.15	7.28	7.04	6.90	6.77	6.54	7.14	6.37	6.46
Social sciences	9.51	9.57	9.47	9.31	8.85	8.49	8.32	8.38	8.44	8.19	8.74	8.05	7.98
Psychology	7.93	8.32	8.34	7.12	7.25	7.22	6.91	6.86	6.76	6.47	7.16	6.37	6.31
Total, non-sci/eng[1].	11.22	11.48	11.48	11.76	11.80	11.71	12.03	11.42	11.44	11.17	11.53	10.88	10.83
Total, all fields ..	8.77	8.90	8.83	8.62	8.37	8.24	8.16	8.08	8.11	7.95	8.31	7.88	7.94
Male													
Total, sci/eng	7.44	7.47	7.35	7.05	6.88	6.92	6.76	6.77	6.70	6.58	6.91	6.51	6.65
Physical sciences ..	6.25	6.32	6.26	6.14	6.02	6.06	5.92	5.88	5.88	5.87	6.01	5.99	6.09
Physics & astron .	6.92	6.95	6.92	6.72	6.54	6.59	6.41	6.44	6.39	6.38	6.53	6.45	6.65
Chemistry	5.86	5.95	5.80	5.73	5.59	5.58	5.51	5.40	5.38	5.41	5.54	5.56	5.64
Earth, env, mar sci.	7.59	7.94	8.02	7.36	7.80	7.61	7.41	7.42	7.56	7.84	7.64	7.69	7.61
Engineering	7.36	7.12	7.05	6.86	6.97	7.02	6.98	7.16	7.07	7.01	7.05	6.92	7.20
Chemical	6.66	6.17	6.30	5.99	6.12	5.99	5.70	6.04	5.83	5.87	6.02	6.31	6.22
Civil	8.00	7.86	8.25	7.46	7.48	8.57	8.19	7.86	7.64	7.97	7.94	7.26	7.89
Electrical	7.50	6.65	6.88	6.70	6.99	6.83	7.16	7.08	7.11	6.90	6.99	6.71	6.89
Mechanical	7.42	7.73	7.27	7.50	7.11	7.37	7.28	7.45	7.34	7.22	7.33	7.35	7.49
Mathematical sci ...	7.16	7.47	7.13	6.85	6.03	6.07	5.75	6.02	5.87	5.85	6.14	5.97	6.27
Life sciences	7.87	7.72	7.61	7.49	7.20	7.29	7.23	7.14	7.06	6.69	7.25	6.46	6.55
Agricultural sci .	7.70	7.66	7.55	7.85	7.90	7.44	8.18	7.99	8.30	7.31	7.80	7.16	7.63
Biological sci ...	7.96	7.74	7.63	7.38	7.04	7.24	6.99	6.85	6.74	6.49	7.09	6.36	6.38
Social sciences	9.45	9.45	9.35	9.14	8.78	8.43	8.16	8.20	8.34	8.00	8.60	7.97	7.82
Psychology	7.65	7.99	8.11	6.97	6.91	6.93	6.63	6.62	6.47	6.29	6.90	6.17	6.07
Total, non-sci/eng[1].	10.84	11.37	11.14	11.36	11.40	11.39	11.66	11.08	11.09	10.83	11.17	10.60	10.51
Total, all fields ..	8.54	8.62	8.57	8.35	8.09	8.01	7.91	7.84	7.88	7.71	8.07	7.64	7.71
Female													
Total, sci/eng	9.00	9.66	8.88	8.19	8.25	7.92	7.77	7.64	7.33	7.28	7.90	7.13	7.35
Physical sciences ..	6.42	7.50	5.93	6.18	6.41	6.30	5.90	5.98	6.48	6.13	6.23	6.60	6.28
Physics & astron .	*	*	*	*	*	7.25	*	6.50	7.63	6.63	7.11	7.22	7.07
Chemistry	6.00	7.38	5.50	5.96	6.23	6.15	5.80	5.74	6.40	5.98	6.06	6.38	6.10
Earth & env sci	*	*	*	*	*	*	*	*	*	*	8.40	*	*
Engineering	*	*	*	*	*	*	*	*	*	*	7.77	*	*
Chemical	*	*	*	*	*	*	*	*	*	*	*	*	*
Civil	*	*	*	*	*	*	*	*	*	*	*	*	*
Electrical	*	*	*	*	*	*	*	*	*	*	*	*	*
Mechanical	*	*	*	*	*	*	*	*	*	*	*	*	*
Mathematical sci ...	*	*	7.00	6.25	6.60	7.38	6.75	7.64	6.45	6.44	6.95	6.75	6.61
Agricultural sci .	*	*	*	*	*	*	*	*	*	*	8.73	9.00	8.38
Biological sci ...	8.85	8.71	8.86	7.86	8.18	7.61	7.37	7.14	6.87	6.84	7.44	6.43	6.97
Social sciences	11.00	11.25	11.17	12.17	9.75	9.83	10.15	11.05	9.60	10.35	10.55	8.71	9.12
Psychology	9.29	10.45	9.90	8.62	9.50	9.28	8.84	8.23	7.90	7.50	8.60	7.33	7.26
Total, non-sci/eng[1].	15.41	15.38	14.58	14.89	14.63	13.91	14.47	13.60	13.85	13.24	14.15	12.51	12.36
Total, all fields ..	12.20	12.44	12.06	11.83	11.93	11.16	10.86	10.52	10.29	10.16	11.07	9.63	9.77

See footnotes at end of table.

Table 6. Median lapsed time between receipt of baccalaureate and science and engineering doctoral degrees by field: 1960-81 - Con.

	Year of doctorate												
Years BA-PhD	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1970-81
Total, male and female													
Total, sci/eng	7.03	7.21	7.25	7.22	7.27	7.37	7.46	7.47	7.16	7.57	7.63	7.60	7.16
Physical sciences ..	6.31	6.53	6.51	6.52	6.47	6.72	6.72	6.36	6.39	6.45	6.38	6.42	6.25
Physics & astron .	6.75	7.00	7.16	7.17	6.99	7.31	7.31	7.02	6.94	7.22	6.99	7.10	6.82
Chemistry	5.93	6.09	6.03	6.11	6.17	6.26	6.35	5.95	5.99	5.99	5.99	5.99	5.84
Earth, env, mar sci.	7.95	7.74	8.06	7.86	7.70	8.02	7.88	7.59	7.83	8.05	8.27	8.16	7.81
Engineering	7.46	7.73	7.62	7.53	7.46	7.46	7.50	7.57	7.44	7.63	7.89	7.76	7.34
Chemical	6.31	6.48	6.47	6.76	6.46	6.62	6.59	5.90	6.41	6.54	6.59	6.56	6.27
Civil	7.84	8.74	8.77	8.58	8.80	8.38	7.95	8.29	8.24	8.35	8.36	8.36	8.16
Electrical	7.29	7.46	7.43	7.21	7.28	7.31	7.01	7.64	7.21	7.32	7.50	7.41	7.15
Mechanical	7.82	8.04	7.87	7.83	7.91	7.92	8.06	7.50	7.77	7.95	7.88	7.92	7.61
Mathematical sci ...	6.72	6.85	7.00	6.94	6.93	6.90	7.18	7.17	6.75	7.08	7.10	7.09	6.58
Life sciences	6.86	7.05	7.04	7.01	7.12	7.12	7.17	7.18	6.98	7.15	7.14	7.14	7.08
Agricultural sci .	7.66	7.91	7.87	7.96	8.24	7.98	7.92	7.94	7.85	8.02	7.90	7.96	7.85
Biological sci ...	6.69	6.89	6.88	6.79	6.94	6.96	7.00	7.03	6.80	7.00	7.01	7.01	6.92
Social sciences	8.02	8.22	8.35	8.48	8.53	8.79	8.82	9.25	8.43	9.34	9.36	9.35	8.61
Psychology	6.62	6.66	6.77	6.84	6.91	7.16	7.38	7.69	6.93	7.92	8.35	8.14	7.15
Total, non-sci/eng[1].	10.68	10.69	10.59	10.90	11.04	11.19	11.35	11.47	10.98	11.98	12.22	12.10	11.27
Total, all fields ..	8.19	8.40	8.51	8.57	8.64	8.71	8.90	9.04	8.47	9.27	9.39	9.33	8.52
Male													
Total, sci/eng	6.99	7.20	7.25	7.23	7.25	7.37	7.39	7.38	7.12	7.48	7.51	7.49	7.09
Physical sciences ..	6.31	6.53	6.52	6.54	6.49	6.75	6.75	6.34	6.38	6.52	6.38	6.44	6.25
Physics & astron .	6.75	7.00	7.14	7.18	7.01	7.32	7.30	7.00	6.93	7.24	6.95	7.08	6.80
Chemistry	5.89	6.06	6.03	6.12	6.16	6.28	6.36	5.90	5.97	6.05	5.97	6.01	5.81
Earth, env, mar sci.	7.97	7.80	8.05	7.86	7.69	8.11	7.91	7.67	7.85	8.06	8.36	8.20	7.82
Engineering	7.46	7.75	7.63	7.55	7.46	7.49	7.50	7.59	7.44	7.65	7.93	7.79	7.34
Chemical	6.31	6.48	6.47	6.76	6.45	6.66	6.60	5.92	6.41	6.59	6.65	6.61	6.27
Civil	7.85	8.80	8.77	8.61	8.82	8.44	7.96	8.31	8.26	8.35	8.36	8.36	8.17
Electrical	7.29	7.46	7.44	7.26	7.31	7.33	7.01	7.64	7.22	7.35	7.50	7.42	7.15
Mechanical	7.84	8.08	7.88	7.87	7.88	7.95	8.08	7.53	7.79	7.97	7.95	7.96	7.62
Mathematical sci ...	6.70	6.86	7.02	6.91	6.92	6.83	7.18	7.10	6.71	6.96	7.06	7.01	6.53
Life sciences	6.86	7.03	7.10	7.07	7.14	7.12	7.11	7.17	6.97	7.12	7.13	7.12	7.07
Agricultural sci .	7.62	7.93	7.82	7.99	8.23	7.98	7.89	8.10	7.85	8.11	7.95	8.03	7.85
Biological sci ...	6.68	6.85	6.92	6.82	6.93	6.93	6.89	6.95	6.76	6.91	6.96	6.94	6.88
Social sciences	7.90	8.18	8.30	8.46	8.46	8.71	8.64	8.99	8.32	9.21	9.18	9.20	8.47
Psychology	6.34	6.47	6.64	6.74	6.82	7.14	7.27	7.49	6.73	7.69	8.13	7.93	6.92
Total, non-sci/eng[1].	10.40	10.38	10.40	10.66	10.85	10.92	11.06	11.16	10.69	11.56	11.69	11.63	10.94
Total, all fields ..	8.00	8.20	8.34	8.36	8.37	8.44	8.55	8.62	8.22	8.77	8.81	8.79	8.23
Female													
Total, sci/eng	7.35	7.28	7.23	7.22	7.41	7.40	7.81	7.90	7.43	7.96	8.06	8.01	7.61
Physical sciences ..	6.46	6.50	6.36	6.26	6.34	6.41	6.48	6.51	6.42	6.05	6.39	6.22	6.33
Physics & astron .	6.92	7.08	7.60	6.89	6.43	7.19	7.39	7.27	7.14	7.07	7.61	7.29	7.16
Chemistry	6.35	6.39	5.98	5.98	6.30	6.13	6.21	6.28	6.21	5.72	6.12	5.92	6.13
Earth, env, mar sci.	7.25	6.80	8.50	8.00	7.88	7.00	7.50	7.06	7.41	8.00	7.63	7.79	7.57
Engineering	7.50	6.75	7.00	6.79	7.57	6.41	7.40	6.92	7.03	6.58	7.14	6.98	7.11
Chemical	*	*	*	*	*	*	*	*	6.21	*	*	5.80	6.32
Civil	*	*	*	*	*	*	*	*	6.70	*	*	*	7.22
Electrical	*	*	*	*	*	*	*	*	6.70	*	*	6.83	6.83
Mechanical	*	*	*	*	*	*	*	*	6.69	*	*	*	6.75
Mathematical sci ...	6.88	6.65	6.70	7.30	7.03	7.20	7.19	7.44	7.05	8.22	7.40	7.69	7.13
Life sciences	6.84	7.11	6.81	6.71	7.05	7.09	7.43	7.20	7.01	7.23	7.19	7.21	7.13
Agricultural sci .	9.00	7.36	8.50	7.30	8.42	7.90	8.40	6.55	7.86	7.22	7.58	7.43	7.84
Biological sci ...	6.76	7.10	6.74	6.68	6.98	7.06	7.37	7.25	6.96	7.23	7.16	7.20	7.10
Social sciences	8.83	8.53	8.65	8.55	8.80	9.09	9.44	10.06	9.02	9.68	9.80	9.73	9.32
Psychology	7.42	7.22	7.07	7.07	7.13	7.18	7.57	7.99	7.35	8.29	8.61	8.45	7.76
Total, non-sci/eng[1].	12.01	11.67	11.21	11.49	11.47	11.82	11.99	12.13	11.81	12.63	12.98	12.81	12.38
Total, all fields ..	9.68	9.66	9.41	9.53	9.72	9.74	10.06	10.27	9.79	10.53	10.84	10.69	10.16

* Asterisks indicate too few cases (under 20 cases) present within a cell to compute a median.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

Table 7. Field-switching between baccalaureate and doctoral degrees by major field: for selected years[a]

Field of baccalaureate

Field of doctorate	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio sci				
Year of doctorate - 1960																		
Total, sci/eng	5369	1717	514	1203	197	851	212	80	210	147	290	1256	497	759	537	521	894	6263
Physical sciences.	1511	1353	416	937	1	108	46	0	28	5	23	18	5	13	2	1	97	1608
Physics & astron	506	422	407	15	1	58	3	0	28	5	24	1	0	1	0	0	24	530
Chemistry	1005	931	9	922	0	50	43	0	0	0	4	17	5	12	2	1	73	1078
Earth & env sci ..	239	26	19	7	189	6	1	2	0	1	9	6	2	4	1	2	14	253
Engineering	771	69	34	35	4	684	158	74	176	130	9	4	2	2	1	0	23	794
Chemical	178	23	3	20	0	152	148	0	0	1	2	1	0	1	0	0	3	181
Civil	60	1	0	1	0	59	0	54	1	0	0	0	0	0	0	0	2	62
Electrical	196	16	16	0	0	177	0	0	165	5	3	0	0	0	0	0	5	201
Mechanical	140	4	3	1	0	133	3	12	3	100	2	1	0	1	0	0	4	144
Mathematical sci .	264	30	27	3	0	24	2	3	3	7	207	1	0	1	2	0	27	291
Life sciences	1419	220	13	207	0	8	1	0	2	1	5	1170	455	715	11	5	241	1660
Agricultural sci	392	11	0	11	0	2	0	0	0	0	0	367	310	57	2	0	32	414
Biology	1037	209	13	196	0	6	1	0	2	1	5	803	145	658	9	5	209	1246
Social sciences ..	578	7	2	5	2	18	4	1	1	2	22	38	32	6	480	11	307	885
Psychology	587	12	3	9	1	3	0	0	0	1	10	19	1	18	40	502	185	772
Total, non-sci/eng[1].	521	70	22	48	2	33	5	3	8	6	70	86	28	58	177	83	2949	3470
Total, all fields ..	5890	1787	536	1251	199	884	217	83	218	153	360	1342	525	817	714	604	3843	9733
Year of doctorate - 1965																		
Total, sci/eng	9223	2644	971	1673	313	2301	456	294	584	437	639	1897	756	1141	757	672	1253	10476
Physical sciences.	2391	2072	801	1271	3	223	62	5	64	19	44	36	21	15	2	1	109	2490
Physics & astron	1013	811	797	14	2	162	9	5	63	19	35	2	0	2	1	0	33	1046
Chemistry	1368	1261	4	1257	1	61	53	0	1	0	9	34	21	13	1	1	76	1444
Earth & env sci ..	363	24	16	8	284	29	4	5	8	1	11	12	4	8	3	0	12	375
Engineering	2023	95	56	39	8	1881	369	276	470	386	31	5	4	1	1	2	51	2074
Chemical	367	24	0	24	2	339	332	0	0	1	2	0	0	0	0	0	2	369
Civil	199	5	4	1	0	191	1	171	0	3	3	0	0	0	0	0	10	209
Electrical	488	16	16	0	0	463	0	0	425	8	8	1	1	0	0	0	10	498
Mechanical	418	8	8	0	0	400	3	59	6	290	7	2	1	1	0	1	8	426
Mathematical sci .	638	53	47	6	2	82	6	3	27	15	484	7	2	5	4	6	47	685
Life sciences	2169	372	40	332	5	21	7	0	3	0	25	1731	657	1074	7	8	370	2539
Agricultural sci	527	11	0	11	1	7	1	0	0	0	0	534	451	53	3	1	49	576
Biology	1642	361	40	321	4	14	6	0	3	0	25	1227	206	1021	4	7	321	1963
Social sciences ..	911	16	7	9	9	45	6	3	8	11	27	79	66	13	706	29	448	1359
Psychology	738	12	4	8	2	20	2	2	4	5	17	27	2	25	34	626	216	954
Total, non-sci/eng[1].	979	122	46	76	12	75	7	7	9	14	120	161	39	122	304	185	4855	5864
Total, all fields ..	10202	2766	1017	1749	325	2376	463	301	593	451	759	2058	795	1263	1061	857	6138	16340
Year of doctorate - 1970																		
Total, sci/eng	15513	4282	1693	2589	340	3624	603	424	1052	682	1362	3071	970	2101	1435	1399	2230	17743
Physical sciences.	3675	3252	1293	1959	3	287	88	5	80	28	91	41	15	26	1	0	218	3893
Physics & astron	1554	1289	1272	17	1	195	8	4	78	28	69	0	0	0	0	0	101	1655
Chemistry	2121	1963	21	1942	2	92	80	1	2	0	22	41	15	26	1	0	117	2238
Earth & env sci ..	467	74	53	21	292	51	4	10	8	5	15	26	8	18	8	1	43	510
Engineering	3318	203	163	40	12	3013	477	390	859	620	74	10	5	5	5	1	116	3434
Chemical	441	11	2	9	2	425	409	0	1	9	3	0	0	0	0	0	4	445
Civil	297	5	4	1	0	286	3	250	0	10	5	0	0	0	1	0	14	311
Electrical	835	51	48	3	0	766	3	1	716	6	16	0	0	0	1	1	22	857
Mechanical	612	18	18	0	2	577	9	53	9	427	13	1	0	1	1	0	23	635
Mathematical sci .	1139	77	68	9	1	124	8	9	63	9	924	5	1	4	6	2	86	1225
Life sciences	3608	609	80	529	11	62	15	0	24	4	59	2824	836	1988	13	30	557	4165
Agricultural sci	741	24	3	21	4	10	4	0	0	1	4	697	591	106	2	0	63	804
Biology	2867	585	77	508	7	52	11	0	24	3	55	2127	245	1882	11	30	494	3361
Social sciences ..	1789	40	27	13	19	60	6	6	11	10	153	128	102	26	1340	49	837	2626
Psychology	1517	27	9	18	2	27	5	4	7	6	46	37	3	34	62	1316	373	1890
Total, non-sci/eng[1].	2332	249	83	166	31	199	20	16	51	45	318	421	95	326	618	496	9423	11755
Total, all fields ..	17845	4531	1776	2755	371	3823	623	440	1103	727	1680	3492	1065	2427	2053	1895	11653	29498

See footnotes at end of table.

Table 7. Field-switching between baccalaureate and doctoral degrees by major field: for selected years - Con.[a]

Field of baccalaureate

Field of doctorate	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio sci				
Year of doctorate - 1975																		
Total, sci/eng	15774	3723	1476	2247	348	2948	440	337	838	564	1310	3333	907	2426	2089	2023	2584	18358
Physical sciences.	2878	2636	1068	1568	3	137	36	1	43	11	66	32	5	27	2	2	198	3076
Physics & astron	1235	1067	1053	14	3	102	5	1	43	11	60	1	0	1	1	1	65	1300
Chemistry	1643	1569	15	1554	0	35	31	0	0	0	6	31	5	26	1	1	133	1776
Earth & env sci ..	597	125	69	56	310	66	10	9	11	12	24	66	10	56	5	0	37	634
Engineering	2852	212	177	35	11	2486	368	312	696	501	102	27	16	11	10	4	150	3002
Chemical	352	14	0	14	0	335	318	0	0	6	3	0	0	0	0	0	18	370
Civil	273	7	7	0	3	248	3	198	1	13	10	3	3	0	2	0	17	290
Electrical	588	30	30	0	0	545	0	0	517	5	13	0	0	0	0	0	24	612
Mechanical	472	18	17	1	0	447	5	41	5	331	7	0	0	0	0	0	15	487
Mathematical sci .	1042	54	47	7	0	92	2	3	45	15	883	2	1	1	7	4	105	1147
Life sciences	3885	633	80	553	14	65	15	4	13	11	54	3046	801	2245	27	46	517	4402
Agricultural sci	843	36	4	32	4	18	2	1	2	3	7	770	629	141	6	2	62	905
Biology	3042	597	76	521	10	47	13	3	11	8	47	2276	172	2104	21	44	455	3497
Social sciences ..	2325	34	21	13	9	66	5	4	16	8	127	100	72	28	1914	75	1021	3346
Psychology	2195	29	14	15	1	36	4	4	14	6	54	60	2	58	123	1892	556	2751
Total, non-sci/eng[1].	2982	264	101	163	28	259	18	28	66	55	391	426	74	352	912	702	11611	14593
Total, all fields ..	18756	3987	1577	2410	376	3207	458	365	904	619	1701	3759	981	2778	3001	2725	14195	32951
Year of doctorate - 1980																		
Total, sci/eng	14639	3249	1264	1985	354	2183	323	256	580	414	1179	3564	692	2872	1870	2240	2560	17199
Physical sciences.	2341	2149	812	1337	3	91	29	1	24	5	42	51	5	46	2	3	180	2521
Physics & astron	917	810	797	13	2	65	4	1	24	5	33	3	0	3	2	2	66	983
Chemistry	1424	1339	15	1324	1	26	25	0	0	0	9	48	5	43	0	1	114	1538
Earth & env sci ..	582	137	100	37	293	39	2	4	4	8	35	68	8	60	9	1	46	628
Engineering	2314	257	199	58	12	1865	277	239	495	381	124	36	16	20	11	9	165	2479
Chemical	271	27	4	23	0	242	231	1	0	3	0	2	1	1	0	0	14	285
Civil	221	4	3	1	4	203	0	176	1	9	5	4	2	2	1	0	19	240
Electrical	450	38	37	1	0	388	0	0	360	2	24	0	0	0	0	0	28	478
Mechanical	363	15	15	0	4	330	7	20	2	261	14	0	0	0	0	0	21	384
Mathematical sci .	862	45	41	4	1	61	2	3	33	5	730	6	1	5	16	3	100	962
Life sciences	4197	618	90	528	29	50	10	4	8	3	77	3281	619	2662	45	97	519	4716
Agricultural sci	815	44	3	41	11	17	4	2	1	0	8	710	500	210	19	6	97	912
Biology	3382	574	87	487	18	33	6	2	7	3	69	2571	119	2452	26	91	422	3804
Social sciences ..	1992	16	10	6	13	55	2	4	10	8	127	67	41	26	1649	65	803	2795
Psychology	2351	27	12	15	3	22	1	1	6	4	44	55	2	53	138	2062	747	3098
Total, non-sci/eng[1].	3016	223	81	142	25	195	14	21	37	41	318	450	55	395	947	858	10801	13817
Total, all fields ..	17655	3472	1345	2127	379	2378	337	277	617	455	1497	4014	747	3267	2817	3098	13361	31016
Year of doctorate - 1981																		
Total, sci/eng	14885	3164	1250	1914	363	2183	330	294	582	370	1149	3735	750	2985	1886	2405	2738	17623
Physical sciences.	2421	2208	838	1370	7	84	18	1	29	3	59	55	4	51	4	4	205	2626
Physics & astron	936	824	817	7	1	65	2	1	29	3	43	1	1	0	0	2	79	1015
Chemistry	1485	1384	21	1363	6	19	16	0	0	0	16	54	3	51	4	2	126	1611
Earth & env sci ..	535	94	69	25	278	36	2	8	6	7	27	87	5	82	12	1	47	582
Engineering	2311	252	209	43	16	1874	293	278	478	338	105	50	22	28	6	8	217	2528
Chemical	275	14	1	13	0	257	249	0	0	1	2	2	0	2	0	0	21	296
Civil	260	6	5	1	2	241	1	207	2	11	5	5	4	1	1	0	27	287
Electrical	434	53	51	2	0	370	0	0	347	3	9	1	0	1	0	1	44	478
Mechanical	336	14	14	0	1	302	3	18	5	231	16	1	0	1	2	0	24	360
Mathematical sci .	865	48	41	7	1	74	4	3	44	6	722	6	1	5	9	5	95	960
Life sciences	4206	507	65	442	39	48	9	1	8	5	77	3394	679	2715	50	91	577	4783
Agricultural sci	856	24	0	24	15	11	3	0	0	0	6	775	564	211	18	7	126	982
Biology	3350	483	65	418	24	37	6	1	8	5	71	2619	115	2504	32	84	451	3801
Social sciences ..	1994	32	19	13	17	51	3	2	14	9	114	61	37	24	1654	65	793	2787
Psychology	2553	23	9	14	5	16	1	1	3	2	45	82	2	80	151	2231	804	3357
Total, non-sci/eng[1].	3027	208	80	128	26	204	16	17	50	34	305	487	67	420	992	805	10669	13696
Total, all fields ..	17912	3372	1330	2042	389	2387	346	311	632	404	1454	4222	817	3405	2878	3210	13407	31319

[a] Only doctorates whose baccalaureate-granting institution is known are included in this table.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

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Table 8. Distribution of science and engineering doctorates by state of doctorate-granting institution, by major field, and sex: 1960-81

Total, male and female

Field of study

	Total	Physical sciences			Earth	Engineering						Life sciences					Total[1]	Total
State of PhD inst	sci & eng	Sub-total	Phys& astr	Chem-istry	& env sci	Sub-total	Chem	Civil	Elec	Mech	Math sci	Sub-total	Agri sci	Bio-logy	Soc sci	Psych	non-sci & eng	all flds
Total	319038	61588	25652	35936	10907	54415	7105	5529	12577	9502	19569	78326	15783	62543	50668	43565	226303	545341
Alabama	1710	256	107	149	0	265	19	5	108	87	177	645	172	473	79	288	2270	3980
Alaska	98	22	21	1	49	3	0	1	0	0	0	24	2	22	0	0	1	99
Arizona	3482	651	314	337	284	561	20	60	177	92	115	920	246	674	389	562	2593	6075
Arkansas	773	212	37	175	0	101	10	4	20	15	31	236	74	162	98	95	1149	1922
California	39658	7201	3577	3624	1730	8411	576	853	2353	1282	2727	8589	756	7833	6016	4984	19550	59208
Colorado	5610	939	491	448	434	1011	124	346	178	82	289	1326	366	960	862	749	5709	11319
Connecticut	5545	1282	653	629	158	577	87	31	126	139	356	1284	94	1190	1226	662	4315	9860
Delaware	989	334	75	259	30	262	144	14	23	52	55	153	18	135	23	132	223	1212
Florida	6105	1153	406	747	264	753	85	51	163	118	315	1595	401	1194	819	1206	8649	14754
Georgia	4131	716	159	557	38	662	78	55	111	143	199	1185	269	916	477	854	3365	7496
Hawaii	1273	145	37	108	96	44	0	1	28	0	6	458	134	324	379	145	179	1452
Idaho	524	98	23	75	47	62	30	8	10	2	42	218	101	117	52	5	313	837
Illinois	21208	4129	1551	2578	495	4096	459	756	891	744	1284	4360	719	3641	4045	2799	13621	34829
Indiana	11600	2388	773	1615	188	2217	212	271	514	542	712	2842	618	2224	1963	1290	9826	21426
Iowa	6918	1436	421	1015	133	1287	192	89	279	195	439	2062	753	1309	994	567	4252	11170
Kansas	4198	849	182	667	85	483	103	13	114	114	153	1534	392	1142	461	633	2353	6551
Kentucky	1874	311	84	227	5	156	50	15	8	31	118	603	208	400	362	311	1065	2939
Louisiana	3402	629	195	434	122	298	164	24	18	65	265	1209	350	859	532	347	2760	6162
Maine	268	49	18	31	9	29	25	2	0	0	0	109	48	61	0	72	155	423
Maryland	6274	1489	899	590	185	968	140	32	299	161	422	1714	266	1448	867	629	3802	10076
Massachusetts	19789	4824	2345	2479	742	3906	443	323	824	608	1404	3027	211	2816	3983	1903	12839	32628
Michigan	14678	2263	703	1560	410	2327	278	186	444	473	825	3827	1209	2618	2670	2356	12056	26734
Minnesota	5986	738	247	491	87	931	234	62	217	224	270	1993	673	1320	1031	936	3899	9885
Mississippi	1512	165	13	152	2	128	8	13	47	10	20	642	172	470	166	389	2011	3523
Missouri	6044	880	403	477	243	1095	188	89	307	141	357	1498	372	1126	991	980	4706	10750
Montana	749	100	25	75	42	100	45	8	40	6	54	279	80	199	49	125	314	1063
Nebraska	1851	341	80	261	30	85	11	0	19	33	82	726	313	413	320	267	1880	3731
Nevada	224	54	25	29	43	1	0	0	1	0	0	28	0	28	2	96	69	293
New Hampshire	895	286	99	187	26	70	7	2	5	16	87	308	26	282	39	79	30	925
New Jersey	7271	1795	843	952	257	1318	341	104	295	183	654	1623	334	1289	1064	560	3896	11167
New Mexico	1375	317	175	142	101	331	9	56	142	64	187	180	28	152	93	166	1349	2724
New York	35297	6832	3325	3507	803	5282	725	338	1333	854	2226	7237	993	6244	6429	6488	26265	61562
North Carolina	7792	1170	437	733	141	890	76	109	175	182	446	2737	616	2121	1542	866	4560	12352
North Dakota	755	156	3	153	34	0	0	0	0	0	0	409	129	280	0	156	488	1243
Ohio	12449	2866	960	1906	328	2532	267	120	516	367	616	2501	435	2066	1433	2173	10577	23026
Oklahoma	4117	459	196	263	150	1082	214	152	132	199	177	1178	270	908	571	500	3441	7558
Oregon	4422	637	196	441	256	237	43	24	51	40	307	1616	522	1094	757	612	3054	7476
Pennsylvania	16086	3531	1472	2059	587	3625	524	334	924	624	1000	3101	321	2780	2511	1731	12350	28436
Rhode Island	2524	650	283	367	232	356	19	4	79	118	308	396	23	373	369	213	801	3325
South Carolina	1390	383	119	264	71	190	42	10	34	35	97	358	39	319	83	208	896	2286
South Dakota	362	24	0	24	12	14	0	3	6	0	0	171	85	86	31	110	382	744
Tennessee	4396	767	349	418	41	589	101	36	115	95	206	1174	149	1025	543	1076	3865	8261
Texas	13545	2483	1090	1393	719	2816	427	441	675	476	849	3339	643	2696	1419	1920	9944	23489
Utah	3620	627	216	411	168	689	91	99	122	60	138	1010	216	794	293	695	2981	6601
Vermont	399	114	26	88	0	20	0	0	10	9	6	162	12	150	1	96	76	475
Virginia	3999	780	422	358	121	945	82	85	126	274	272	1147	266	881	463	271	2540	6539
Washington	6047	1028	400	628	366	739	123	105	154	101	346	1811	540	1271	1119	638	2991	9038
West Virginia	1038	142	47	95	34	190	34	49	19	46	1	425	69	356	81	165	684	1722
Wisconsin	9615	1771	561	1210	402	1241	247	122	246	291	699	3152	948	2204	1705	645	6092	15707
Wyoming	647	149	80	69	74	49	3	8	13	8	36	235	100	135	11	93	518	1165
District of Columbia	4487	937	489	448	30	391	5	16	86	98	194	963	2	961	1250	722	4553	9040
Puerto Rico	37	30	0	30	0	0	0	0	0	0	0	2	0	2	5	0	46	83

See footnotes at end of table.

Table 8. Distribution of science and engineering doctorates by state of Ph.D. granting institution, by major field, and sex: 1960-81 - Con.

Male

Field of study

State of PhD inst	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total[1] non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio-logy				
Total	276384	57344	24724	32620	10333	53723	7011	5476	12467	9440	17822	65046	15023	50023	41998	30118	164320	440704
Alabama	1486	241	104	137	0	259	18	5	106	83	150	553	168	385	65	218	1560	3046
Alaska	95	22	21	1	47	3	0	1	0	0	0	23	2	21	0	3	0	95
Arizona	3068	621	304	317	276	554	20	58	177	91	110	799	235	564	303	405	1867	4935
Arkansas	687	202	36	166	0	97	10	4	20	15	30	202	70	132	87	69	944	1631
California	34339	6720	3447	3273	1613	8283	565	845	2322	1275	2522	7002	726	6276	4591	3308	14215	48554
Colorado	4977	895	477	418	422	1005	124	345	176	82	265	1158	355	803	702	530	4355	9332
Connecticut	4664	1176	623	553	151	570	84	31	126	138	322	954	87	867	1016	475	3170	7834
Delaware	890	314	70	244	27	258	143	13	23	52	51	126	18	108	18	96	152	1042
Florida	5322	1078	394	684	246	742	83	50	163	118	279	1396	378	1018	699	882	5943	11265
Georgia	3518	675	155	520	35	661	78	55	111	143	175	1003	258	745	396	573	2336	5854
Hawaii	1070	134	32	102	92	43	0	1	27	0	6	390	122	268	307	98	125	1195
Idaho	490	95	23	72	43	61	30	8	9	2	39	204	100	104	43	5	243	733
Illinois	18378	3810	1498	2312	470	4040	456	751	885	734	1168	3563	681	2882	3357	1970	10151	28529
Indiana	10431	2257	748	1509	183	2190	209	263	507	540	667	2442	594	1848	1692	1000	7449	17880
Iowa	6406	1372	414	958	130	1275	187	87	278	195	407	1862	722	1140	907	453	3343	9749
Kansas	3688	798	178	620	81	479	102	13	113	112	139	1346	363	983	393	452	1695	5383
Kentucky	1641	290	80	210	7	154	50	15	8	30	108	509	185	324	329	244	791	2432
Louisiana	2980	571	187	384	117	296	163	24	18	65	241	1039	332	707	459	257	2121	5101
Maine	243	46	17	29	7	29	25	2	0	0	0	96	46	50	0	62	131	371
Maryland	5365	1370	863	507	168	949	140	32	293	158	393	1380	246	1134	717	388	2517	7882
Massachusetts	16884	4437	2247	2190	699	3839	433	315	820	602	1275	2194	183	2011	3215	1225	9137	26021
Michigan	12774	2111	678	1433	381	2305	273	184	444	471	760	3289	1165	2124	2241	1687	9092	21866
Minnesota	5207	669	239	430	86	918	229	62	213	223	251	1757	646	1111	892	634	3005	8212
Mississippi	1350	158	13	145	2	125	8	13	45	10	18	577	163	414	144	326	1495	2845
Missouri	5233	818	391	427	237	1076	187	88	301	139	313	1274	351	923	811	704	3521	8754
Montana	695	96	23	73	41	100	45	8	40	6	47	260	78	182	49	102	275	970
Nebraska	1660	322	80	242	29	80	10	0	17	32	75	663	300	363	286	205	1519	3179
Nevada	186	52	25	27	42	1	0	0	1	0	0	24	0	24	2	65	43	229
New Hampshire	786	259	95	164	24	69	6	2	5	16	79	265	26	239	29	61	19	805
New Jersey	6429	1688	819	869	247	1300	336	101	294	181	594	1306	313	993	895	399	2939	9368
New Mexico	1238	299	169	130	98	328	9	56	139	64	174	149	27	122	68	122	968	2206
New York	28802	6308	3180	3128	760	5217	716	335	1319	851	1972	5618	939	4679	5061	3866	17627	46429
North Carolina	6690	1079	421	658	135	876	74	103	173	181	407	2293	599	1694	1306	594	3295	9985
North Dakota	694	149	3	146	34	0	0	0	0	0	0	387	126	261	0	124	410	1104
Ohio	10799	2666	922	1744	317	2507	263	120	516	367	551	2071	418	1653	1164	1523	7712	18511
Oklahoma	3771	444	191	253	143	1068	213	149	130	198	161	1046	265	781	518	391	2593	6364
Oregon	3918	599	188	411	238	236	43	24	51	40	283	1445	496	949	681	436	2396	6314
Pennsylvania	13959	3247	1415	1832	558	3593	517	333	922	621	904	2424	302	2122	2077	1156	8767	22726
Rhode Island	2206	599	274	325	211	351	19	4	76	117	291	304	20	284	302	148	527	2733
South Carolina	1226	357	113	244	67	189	41	10	34	35	87	303	38	265	72	151	594	1820
South Dakota	330	24	0	24	12	14	0	3	6	0	0	163	83	80	28	89	318	648
Tennessee	3782	728	337	391	39	579	101	36	115	93	184	948	135	813	485	819	2699	6481
Texas	11873	2320	1059	1261	686	2753	422	438	669	473	764	2742	613	2129	1139	1439	6875	18748
Utah	3339	606	213	393	163	682	90	97	121	60	135	924	205	719	262	567	2395	5734
Vermont	341	109	25	84	0	20	0	0	10	9	5	139	12	127	0	68	41	382
Virginia	3599	729	406	323	112	933	79	84	126	273	252	963	256	707	421	189	1805	5404
Washington	5337	969	390	579	351	735	123	105	154	100	320	1572	520	1052	938	452	2332	7669
West Virginia	922	136	46	90	30	190	34	49	19	46	1	366	65	301	79	120	514	1436
Wisconsin	8530	1678	546	1132	378	1228	246	120	245	290	650	2677	892	1785	1469	450	4579	13108
Wyoming	596	145	79	66	71	48	3	8	13	8	31	220	97	123	10	71	456	1052
District of Columbia	3468	833	466	367	27	385	4	16	85	98	166	635	2	633	972	450	3246	6714
Puerto Rico	25	23	0	23	0	0	0	0	0	0	0	1	0	1	1	0	19	44

See footnotes at end of table.

Table 8. Distribution of science and engineering doctorates by state of Ph.D. granting institution, by major field, and sex: 1960-81 - Con.

Female

Field of study

State of PhD inst	Total sci & eng	Physical sciences: Sub-total	Physical sciences: Phys& astr	Physical sciences: Chem-istry	Earth & env sci	Engineering: Sub-total	Engineering: Chem	Engineering: Civil	Engineering: Elec	Engineering: Mech	Math sci	Life sciences: Sub-total	Life sciences: Agri sci	Life sciences: Bio-logy	Soc sci	Psych	Total[1] non-sci & eng	Total all flds
Total	42626	4216	900	3316	574	692	94	53	110	62	1747	13280	760	12520	8670	13447	62011	104637
Alabama	224	15	3	12	0	6	1	0	0	4	27	92	4	88	14	70	710	934
Alaska	3	0	0	0	2	0	0	0	0	0	0	1	0	1	0	0	1	4
Arizona	414	30	10	20	8	7	0	2	0	1	5	121	11	110	86	157	726	1140
Arkansas	86	10	1	9	0	4	0	0	0	0	1	34	4	30	11	26	205	291
California	5319	481	130	351	117	128	11	8	31	7	205	1567	30	1557	1125	1676	5335	10654
Colorado	633	44	14	30	12	6	0	1	2	0	24	168	11	157	160	219	1354	1987
Connecticut	881	106	30	76	7	7	3	0	0	1	34	330	7	323	210	187	1145	2026
Delaware	99	20	5	15	3	4	1	1	0	0	4	27	0	27	5	36	71	170
Florida	783	75	12	63	18	11	2	1	0	0	36	199	23	176	120	324	2706	3489
Georgia	613	41	4	37	3	1	0	0	0	0	24	182	11	171	81	281	1029	1642
Hawaii	203	11	5	6	4	1	0	0	1	0	0	68	12	56	72	47	54	257
Idaho	34	3	0	3	4	1	0	0	1	0	3	14	1	13	9	0	70	104
Illinois	2830	319	53	266	25	56	3	5	6	10	116	797	38	759	688	829	3470	6300
Indiana	1169	131	25	106	5	27	3	3	7	2	45	400	24	376	271	290	2377	3546
Iowa	512	64	7	57	3	12	5	2	1	0	32	200	31	169	87	114	909	1421
Kansas	510	51	4	47	4	4	1	0	1	2	14	188	29	159	68	181	658	1168
Kentucky	233	21	4	17	1	2	0	0	0	1	10	99	23	76	33	67	274	507
Louisiana	422	58	8	50	5	2	1	0	0	0	24	170	18	152	73	90	639	1061
Maine	28	3	1	2	2	0	0	0	0	0	0	13	2	11	0	10	24	52
Maryland	909	119	36	83	17	19	0	0	6	3	29	334	20	314	150	241	1285	2194
Massachusetts	2905	387	98	289	43	67	10	8	4	6	129	833	28	805	768	678	3702	6607
Michigan	1904	152	25	127	29	22	5	2	0	2	65	538	44	494	429	669	2964	4868
Minnesota	779	69	8	61	1	13	5	0	4	1	19	236	27	209	139	302	894	1673
Mississippi	162	7	0	7	0	3	0	0	2	0	2	65	9	56	22	63	516	678
Missouri	811	62	12	50	6	19	1	1	6	2	44	224	21	203	180	276	1185	1996
Montana	54	4	2	2	1	0	0	0	0	0	7	19	2	17	0	23	39	93
Nebraska	191	19	0	19	1	5	1	0	2	1	7	63	13	50	34	62	361	552
Nevada	38	2	0	2	1	0	0	0	0	0	0	4	0	4	0	31	26	64
New Hampshire	109	27	4	23	2	1	1	0	0	0	8	43	0	43	10	18	11	120
New Jersey	842	107	24	83	10	18	5	3	1	2	60	317	21	296	169	161	957	1799
New Mexico	137	18	6	12	3	3	0	0	3	0	13	31	1	30	25	44	381	518
New York	6495	524	145	379	43	65	9	3	14	3	254	1619	54	1565	1368	2622	8638	15133
North Carolina	1102	91	16	75	6	14	2	1	2	1	39	444	17	427	236	272	1265	2367
North Dakota	61	7	0	7	0	0	0	0	0	0	0	22	3	19	0	32	78	139
Ohio	1650	200	38	162	11	25	4	0	0	0	65	430	17	413	269	650	2865	4515
Oklahoma	346	15	5	10	7	14	1	3	2	1	16	132	5	127	53	109	848	1194
Oregon	504	38	8	30	18	1	0	0	0	0	24	171	26	145	76	176	658	1162
Pennsylvania	2127	284	57	227	29	32	7	1	2	3	96	677	19	658	434	575	3583	5710
Rhode Island	318	51	9	42	21	5	0	0	3	1	17	92	3	89	67	65	274	592
South Carolina	164	26	6	20	4	1	1	0	0	0	10	55	1	54	11	57	302	466
South Dakota	32	0	0	0	0	0	0	0	0	0	0	8	2	6	3	21	64	96
Tennessee	614	39	12	27	2	10	0	0	0	2	22	226	14	212	58	257	1166	1780
Texas	1672	163	31	132	33	33	5	3	6	3	85	597	30	567	280	481	3069	4741
Utah	281	21	3	18	5	7	1	2	1	0	3	86	11	75	31	128	586	867
Vermont	58	5	1	4	0	0	0	0	0	0	1	23	0	23	1	28	35	93
Virginia	400	51	16	35	9	12	3	1	0	1	20	184	10	174	42	82	735	1135
Washington	710	59	10	49	15	4	0	0	0	1	26	239	20	219	181	186	659	1369
West Virginia	116	6	1	5	4	0	0	0	0	0	0	59	4	55	2	45	170	286
Wisconsin	1085	93	15	78	24	13	1	2	1	1	49	475	56	419	236	195	1514	2599
Wyoming	51	4	1	3	3	1	0	0	0	0	5	15	3	12	1	22	62	113
District of Columbia	1019	104	23	81	3	6	1	0	1	0	28	328	0	328	278	272	1307	2326
Puerto Rico	12	7	0	7	0	0	0	0	0	0	0	1	0	1	4	0	27	39

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

Table 9. Distribution of science and engineering doctorates conferred at top 100 doctorate-producing institutions by[a] major field and sex: 1960-81

Total, male and female

Field of study

Doctorate-producing institution	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total[1] non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio-logy				
Univ of Cal, Berkeley	10523	2095	1052	1046	297	2541	252	474	516	458	961	2130	233	1897	1931	565	4251	14774
Univ of Ill, Urbana .	9027	1947	744	1203	248	2345	195	508	625	409	538	2150	718	1432	1136	663	4589	13616
Univ of Wis, Madison.	8767	1509	518	991	399	1116	219	122	213	286	649	2933	946	1987	1619	542	5615	14382
Mass Inst of Tech ...	7456	1891	951	940	409	3198	336	281	674	488	576	539	37	502	770	73	357	7813
Univ of Michigan	7158	976	415	561	298	1555	203	112	295	273	464	1326	181	1145	1392	1147	5222	12380
Purdue University ...	6884	1294	347	947	64	1940	155	250	474	465	380	1809	617	1192	630	767	1602	8486
Stanford University .	6609	1002	609	393	428	2608	113	216	931	394	639	617	6	611	877	438	3029	9638
Cornell University ..	6547	1290	719	571	89	1110	85	149	243	162	384	2143	858	1285	1195	336	1982	8529
Ohio State University	6146	1109	386	723	208	1169	111	77	317	156	257	1621	435	1186	912	870	5068	11214
Univ of Minnesota ...	5986	738	247	491	87	931	234	62	217	224	270	1993	673	1320	1031	936	3899	9885
Harvard University ..	5969	1391	834	557	241	243	0	8	18	40	546	1089	1	1088	1953	506	5567	11536
Univ of Cal, L.A. ...	5669	877	429	448	321	1084	39	30	230	130	421	1230	18	1212	1141	595	3588	9257
Columbia University .	5605	996	543	453	321	742	114	31	168	168	270	596	0	596	1758	922	4563	10168
Michigan State Univ .	5518	767	202	565	103	546	31	58	125	122	240	2129	1028	1101	1020	713	4470	9988
Univ of Texas, Austin	4845	969	456	513	185	1051	138	203	238	198	310	827	1	826	774	729	3328	8173
Univ of Chicago	4597	961	512	449	161	0	0	0	0	0	347	877	0	877	1676	575	2999	7596
New York University .	4531	541	296	245	114	543	78	44	135	43	500	680	3	677	1025	1128	5384	9915
Iowa State Univ	4441	936	283	653	44	942	149	56	211	85	244	1530	753	777	595	150	579	5020
Univ of Washington ..	4286	789	303	486	335	658	117	99	150	84	252	1146	271	875	705	401	2212	6498
Penn State University	4253	926	387	539	450	779	85	62	103	150	209	979	321	658	482	428	2864	7117
Univ of Pennsylvania.	4049	791	339	452	16	871	122	37	317	106	236	765	0	765	1083	287	2717	6766
Yale University	3721	922	519	403	139	301	65	2	77	51	279	810	77	733	942	328	2852	6573
Northwestern Univ ...	3714	649	170	479	79	1162	166	209	141	187	219	427	0	427	759	419	2594	6308
U of Md, College Park	3580	974	636	338	39	521	109	30	143	87	291	851	266	585	436	468	2299	5879
Princeton University.	3306	941	549	392	173	743	241	65	171	68	377	208	0	208	692	172	1375	4681
Indiana University ..	3217	648	245	403	121	3	0	0	0	0	175	827	0	827	1052	391	6556	9773
Univ of Florida	3213	602	182	420	19	711	85	46	155	96	104	927	395	532	454	396	1915	5128
Rutgers, St U of N.J.	3148	536	180	356	84	315	23	32	45	58	205	1308	334	974	366	334	2058	5206
Univ of Cal, Davis ..	3096	412	129	283	47	322	23	52	34	58	53	1975	304	1671	226	61	274	3370
Texas A & M Univ	3022	449	144	305	257	651	64	159	63	78	124	1219	615	604	272	50	920	3942
Univ of Colorado	2867	705	405	300	160	325	49	89	94	28	166	427	0	427	662	422	1758	4625
Case Western Reserve.	2781	741	295	446	40	839	69	20	114	120	217	366	0	366	219	359	1353	4134
U of NC Chapel Hill .	2737	528	154	374	111	51	1	0	0	0	202	659	0	659	768	418	2365	5102
Univ of Pittsburgh ..	2702	633	259	374	58	420	82	32	129	83	134	540	0	540	573	344	3295	5997
Univ of Southern Cal.	2601	310	105	205	66	692	30	31	319	51	103	425	0	425	594	411	4913	7514
U of Missouri, Columb	2596	252	101	151	75	376	45	27	152	37	86	914	372	542	507	386	2118	4714
University of Kansas.	2588	561	113	448	84	275	57	12	90	44	89	710	1	709	331	538	1708	4296
Johns Hopkins Univ ..	2579	510	263	247	146	447	31	2	156	74	129	755	0	755	431	161	1400	3979
Univ of Arizona	2530	460	254	206	266	353	15	51	106	51	70	766	246	520	331	284	991	3521
NC St Univ, Raleigh .	2480	189	82	107	21	656	75	80	93	159	134	1107	531	576	281	92	406	2886
University of Iowa ..	2477	500	138	362	89	345	43	33	68	110	195	532	0	532	399	417	3517	5994
U of Tenn, Knoxville.	2401	425	207	218	41	410	78	14	74	66	98	687	149	538	301	439	1530	3931
Duke University	2388	452	201	251	9	183	0	29	82	23	110	865	85	780	492	277	1388	3776
Oregon State Univ ...	2341	327	58	269	214	221	43	24	51	40	156	1230	522	708	180	13	497	2838
Cal Inst of Tech	2323	956	558	398	169	740	104	48	149	136	176	263	0	263	12	7	8	2331
SUNY at Buffalo	2304	453	108	345	10	323	66	41	50	60	111	681	1	680	347	379	1852	4156
Univ of Rochester ...	2226	687	443	244	33	202	62	0	46	46	127	592	0	592	267	318	1034	3260
University of Utah ..	2180	392	117	275	137	472	73	19	88	37	138	428	3	425	200	413	1449	3629
U of Massachusetts ..	2155	487	102	385	42	251	52	34	33	44	90	558	173	385	343	384	1862	4017
Oklahoma State Univ .	2101	248	98	150	2	621	69	106	94	159	100	672	270	402	288	170	1445	3546

See footnotes at end of table.

Table 9. Distribution of science and engineering doctorates conferred at top 100 doctorate-producing institutions [a] by major field and sex: 1960-81 - Con.

Total, male and female

Doctorate-producing institution	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total[1] non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio-logy				
Syracuse University .	2095	327	186	141	46	382	55	8	169	55	151	237	1	236	577	375	2024	4119
Univ of Georgia	1968	248	30	218	25	0	0	0	0	0	95	830	268	562	283	487	1976	3944
Louisiana State Univ.	1958	379	128	251	100	157	106	9	12	27	108	696	350	346	292	226	1154	3112
Univ of Oklahoma	1950	211	98	113	131	412	122	46	38	40	77	506	0	506	283	330	1713	3663
Colorado State Univ .	1889	165	50	115	124	413	0	255	42	42	63	867	366	501	139	149	214	2103
Washington University	1842	302	160	142	49	393	81	34	86	53	122	354	0	354	341	281	723	2565
Florida State Univ ..	1840	443	192	251	155	5	0	0	1	0	157	271	2	269	353	456	3371	5211
Univ of Nebraska	1835	341	80	261	30	85	11	0	19	33	82	710	313	397	320	267	1880	3715
Brown University	1817	524	270	254	82	240	1	1	38	99	296	179	1	178	354	142	752	2569
U of Oregon, Eugene .	1810	291	127	164	32	0	0	0	0	0	150	310	0	310	577	450	2410	4220
Va Polytech Institute	1805	229	85	144	57	542	46	59	55	217	134	618	266	352	198	27	537	2342
Carnegie-Mellon Univ.	1768	454	226	228	1	892	138	109	300	116	245	15	0	15	89	72	321	2089
Washington St Univ ..	1761	239	97	142	31	81	6	6	4	17	94	665	269	396	414	237	731	2492
Univ of Connecticut .	1702	314	119	195	19	276	22	29	49	88	44	441	17	424	279	329	1365	3067
Univ of Virginia	1678	456	281	175	25	382	36	23	68	44	138	261	0	261	265	151	1827	3505
U of Cal, San Diego .	1655	476	306	170	277	141	0	0	9	25	96	402	0	402	145	118	203	1858
Wayne State Univ	1617	422	86	336	1	113	32	9	11	47	99	354	0	354	212	416	1912	3529
Kansas State Univ ...	1608	288	69	219	1	206	46	1	24	70	64	824	391	433	130	95	619	2227
CUNY Graduate School.	1590	266	104	162	7	128	42	4	46	31	94	288	0	288	282	525	772	2362
Rensselaer Polytech .	1505	479	211	268	51	761	81	38	126	132	138	56	1	55	19	1	82	1587
Univ of Cincinnati ..	1502	381	88	293	65	320	55	18	33	55	65	276	0	276	164	231	1036	2538
Univ of Kentucky	1441	201	77	124	7	120	19	15	8	31	117	431	208	223	359	206	852	2293
US Internat'l Univ ..	1439	0	0	0	1	0	0	0	0	0	1	0	0	0	33	1404	376	1815
Polytechnic Inst, NY.	1392	531	170	361	3	754	91	20	304	95	103	0	0	0	1	0	2	1394
Univ of Notre Dame ..	1389	446	181	265	1	274	57	21	40	77	157	181	1	180	260	70	640	2029
Boston University ...	1373	195	92	103	49	0	0	0	0	0	52	353	0	353	247	477	2969	4342
Catholic Univ of Am .	1366	375	261	114	2	212	5	13	41	66	67	162	0	162	203	345	1793	3159
Rice University	1365	456	269	187	158	415	127	36	109	77	112	123	0	123	82	19	296	1661
U of Cal, Riverside .	1347	300	151	149	33	0	0	0	0	0	103	613	194	419	214	84	173	1520
Vanderbilt University	1327	305	142	163	0	162	23	22	40	17	59	333	0	333	235	233	724	2051
University of Hawaii.	1273	145	37	108	96	44	0	1	28	0	6	458	134	324	379	145	179	1452
Illinois Inst Tech ..	1241	238	77	161	2	496	88	37	123	119	96	78	0	78	27	304	25	1266
SUNY at Stony Brook .	1177	341	233	108	30	145	0	0	36	49	147	166	1	165	114	234	208	1385
U of Cal, Santa Barb.	1173	282	86	196	50	135	15	0	72	22	72	227	1	226	304	103	528	1701
Tulane Univ of La ...	1155	145	52	93	22	128	55	14	5	39	109	409	0	409	223	119	771	1926
University of Houston	1141	197	49	148	4	242	86	9	54	64	87	146	0	146	65	400	903	2044
Georgia Inst of Tech.	1093	344	120	224	12	662	78	55	111	143	55	7	0	7	2	11	5	1098
George Washington U .	1082	65	21	44	28	176	0	3	45	32	80	309	1	308	216	208	1236	2318
Temple University ...	1082	254	103	151	0	0	0	0	0	0	50	264	0	264	123	391	2037	3119
West Virginia Univ ..	1038	142	47	95	34	190	34	49	19	46	1	425	69	356	81	165	684	1722
Univ of Delaware	989	334	75	259	30	262	144	14	23	52	55	153	18	135	23	132	223	1212
Fordham University ..	986	202	49	153	3	0	0	0	0	0	9	170	0	170	163	439	1347	2333
Lehigh University ...	973	229	97	132	34	468	85	92	41	113	111	61	0	61	41	29	414	1387
Utah State University	962	94	36	58	15	176	0	71	30	15	0	482	211	271	73	122	389	1351
Sthrn Ill U, Carbondl	934	94	19	75	3	2	0	0	0	0	26	185	1	184	314	310	1495	2429
Arizona State Univ ..	934	191	60	131	18	208	5	9	71	41	45	137	0	137	57	278	1478	2412
Univ of New Mexico ..	891	179	75	104	58	220	9	30	105	40	101	97	0	97	93	143	1143	2034
St Louis University .	889	143	65	78	67	0	0	0	0	0	73	215	0	215	137	254	1472	2361
Brandeis University .	835	277	142	135	0	2	0	0	1	0	94	206	0	206	189	67	769	1604
American University .	688	133	64	69	0	2	0	0	0	0	30	6	0	6	377	140	973	1661

See footnotes at end of table.

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Table 9. Distribution of science and engineering doctorates conferred at top 100 doctorate-producing institutions[a] by major field and sex: 1960-81 - Con.

Male

Field of study

Doctorate-producing institution	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total[1] non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio-logy				
Univ of Cal, Berkeley	9246	1968	1019	949	274	2509	248	472	511	456	887	1687	220	1467	1572	349	3097	12343
Univ of Ill, Urbana .	8200	1829	724	1105	236	2327	197	507	620	406	486	1843	680	1163	974	505	3457	11657
Univ of Wis, Madison.	7780	1426	505	921	375	1104	218	120	212	285	603	2507	890	1617	1403	362	4271	12051
Mass Inst of Tech ...	6978	1773	919	854	387	3147	329	274	670	485	541	404	28	376	672	54	316	7294
Univ of Michigan	6154	913	399	514	276	1542	201	111	295	271	435	1054	178	876	1128	806	3840	9994
Purdue University ...	6370	1239	334	905	62	1913	153	247	467	463	362	1624	593	1031	563	605	1190	7560
Stanford University..	5982	949	589	360	398	2566	112	213	919	390	599	453	5	448	707	310	2259	8241
Cornell University ..	5783	1213	702	511	85	1093	63	148	237	161	346	1858	807	1051	995	193	1478	7261
Ohio State University	5351	1023	371	652	203	1162	110	77	317	156	233	1371	418	953	753	606	3716	9067
Univ of Minnesota ...	5207	669	239	430	86	918	229	62	213	223	251	1757	646	1111	892	634	3005	8212
Harvard University ..	5023	1313	801	512	227	237	0	6	18	39	496	797	1	796	1617	336	4235	9258
Univ of Calif, L. A..	4803	812	412	400	297	1062	37	28	225	129	395	963	17	946	886	388	2472	7275
Columbia University..	4296	897	511	386	303	730	112	30	168	166	237	358	0	358	1297	474	3020	7316
Michigan State Univ..	4981	713	197	516	97	542	31	57	125	122	218	1947	987	960	919	545	3551	8532
Univ of Texas, Austin	4198	916	442	474	181	1041	136	202	237	198	288	640	1	639	590	542	2330	6528
University of Chicago	3856	897	496	401	151	0	0	0	0	0	320	714	0	714	1392	382	2336	6192
New York University .	3521	495	282	213	108	539	77	44	135	43	444	453	2	451	819	663	3583	7104
Iowa State University	4175	895	280	615	42	935	147	54	210	85	230	1416	722	694	549	108	415	4590
Univ of Washington ..	3736	736	296	440	320	655	117	99	150	83	230	958	262	696	575	262	1691	5427
Penn State University	3867	877	376	501	433	774	84	61	103	150	193	860	302	558	434	296	2220	6087
Univ of Pennsylvania.	3416	707	324	383	15	862	121	37	317	106	208	543	0	543	896	185	1914	5330
Yale University	3148	844	495	349	132	295	62	2	77	50	253	595	73	522	792	237	2093	5241
Northwestern Univ ...	3138	580	160	420	77	1134	164	205	141	185	199	298	0	298	597	253	1886	5024
U of Md, College Park	3066	900	603	297	32	512	109	30	137	86	273	695	246	449	376	278	1420	4486
Princeton University.	3090	902	538	364	170	732	238	63	170	67	356	176	0	176	608	146	1188	4278
Indiana University ..	2744	613	236	377	118	3	0	0	0	0	159	663	0	663	891	297	5023	7767
Univ of Florida	2884	572	177	395	16	700	83	45	155	96	86	830	374	456	390	290	1352	4236
Rutgers, St U of N.J.	2602	492	168	324	77	312	23	31	45	58	170	1054	313	741	281	216	1360	3962
Univ of Cal, Davis ..	2746	382	121	261	43	313	22	51	33	58	48	1742	296	1446	187	31	206	2952
Texas A & M Univ	2865	421	141	280	247	644	64	158	63	76	112	1154	589	565	254	33	745	3610
Univ of Colorado	2450	676	395	281	153	322	49	89	92	28	158	311	0	311	534	296	1213	3663
Case Western Reserve.	2441	703	286	417	38	828	68	20	114	120	199	277	0	277	151	245	881	3322
U of NC Chapel Hill .	2235	488	148	340	107	49	1	0	0	0	182	501	0	501	623	285	1706	3941
Univ of Pittsburgh ..	2281	583	244	339	52	414	80	32	129	82	125	404	0	404	486	217	2212	4493
Univ of Southern Cal.	2212	272	103	169	63	682	30	31	313	51	94	347	0	347	504	250	3682	5894
U of Missouri, Columb	2354	239	99	140	72	368	45	26	149	36	82	835	351	484	436	322	1754	4108
University of Kansas.	2211	524	110	414	80	273	57	12	89	43	84	600	1	599	279	371	1271	3482
Johns Hopkins Univ ..	2210	465	260	205	136	437	31	2	156	72	119	602	0	602	341	110	1017	3227
University of Arizona	2247	440	245	195	258	348	15	49	106	50	69	675	235	440	259	198	693	2940
NC St Univ, Raleigh .	2312	175	78	97	20	646	73	79	92	158	126	1017	515	502	262	66	320	2632
University of Iowa ..	2231	477	134	343	88	340	40	33	68	110	177	446	0	446	358	345	2811	5042
U of Tenn, Knoxville.	2154	404	198	206	39	407	78	14	74	66	90	570	135	435	270	374	1034	3188
Duke University	2012	415	195	220	8	181	0	29	81	23	99	687	84	603	421	201	1112	3124
Oregon State Univ ...	2183	307	57	250	204	221	43	24	51	40	140	1136	496	640	167	8	386	2569
Cal Inst of Tech	2203	902	541	361	164	729	102	48	147	136	171	222	0	222	11	4	8	2211
SUNY at Buffalo	1929	426	106	320	10	315	66	40	49	60	103	539	1	538	263	273	1399	3328
Univ of Rochester ...	1899	636	428	208	33	201	62	0	45	46	112	459	0	459	221	237	753	2652
University of Utah ..	1998	380	116	264	132	468	72	18	87	37	135	385	3	382	178	320	1129	3127
Univ of Massachusetts	1772	434	98	336	38	244	52	33	33	42	79	448	154	294	265	264	1244	3016
Oklahoma State Univ .	1972	237	94	143	2	618	68	106	93	159	92	627	265	362	263	133	1086	3058

See footnotes at end of table.

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Table 9. Distribution of science and engineering doctorates conferred at top 100 doctorate-producing institutions [a] by major field and sex: 1960-81 - Con.

Male

Doctorate-producing institution	Total sci & eng	Physical sciences: Sub-total	Physical sciences: Phys& astr	Physical sciences: Chem-istry	Earth & env sci	Engineering: Sub-Total	Engineering: Chem	Engineering: Civil	Engineering: Elec	Engineering: Mech	Math sci	Life sciences: Sub-total	Life sciences: Agri sci	Life sciences: Bio-logy	Soc sci	Psych	Total[1] non-sci & eng	Total all flds
Syracuse University .	1837	309	180	129	46	378	54	8	168	55	131	200	1	199	517	256	1568	3405
University of Georgia	1689	240	30	210	23	0	0	0	0	0	87	736	257	479	246	357	1404	3093
Louisiana State Univ.	1768	350	124	226	98	156	105	9	12	27	99	637	332	305	258	170	865	2633
Univ of Oklahoma	1734	207	97	110	125	401	122	43	37	39	69	419	0	419	255	258	1304	3038
Colorado State Univ .	1779	157	48	109	121	411	0	254	42	42	55	820	355	465	102	113	172	1951
Washington St. Univ .	1601	233	94	139	31	80	6	6	4	17	90	614	258	356	363	190	620	2221
Florida State Univ ..	1586	410	185	225	151	5	0	0	1	0	143	231	1	230	302	344	2310	3896
Univ of Nebraska	1647	322	80	242	29	80	10	0	17	32	75	650	300	350	286	205	1519	3166
Brown University	1584	484	262	222	75	236	1	1	36	98	282	118	1	117	289	100	496	2080
Univ of Oregon, Eug .	1513	275	120	155	29	0	0	0	0	0	142	247	0	247	514	306	1888	3401
Va Polytechnic Inst .	1684	216	83	133	52	537	45	58	55	216	121	559	256	303	181	18	324	2008
Carnegie-Mellon Univ.	1699	429	221	208	1	885	136	109	298	116	227	9	0	9	84	64	264	1963
Washington Univ	1537	277	153	124	46	388	81	34	85	53	111	261	0	261	271	183	504	2041
Univ of Connecticut .	1415	294	115	179	19	275	22	29	49	88	40	333	14	319	220	234	990	2405
Univ of Virginia	1505	427	272	155	25	375	34	23	68	44	131	193	0	193	240	114	1355	2860
Univ of Cal San Diego	1426	438	293	145	259	140	0	0	9	25	83	311	0	311	111	84	137	1563
Wayne State Univ	1312	396	82	314	1	109	29	9	11	47	87	271	0	271	159	289	1361	2673
Kansas State Univ ...	1475	274	68	206	1	204	45	1	24	69	55	746	362	384	114	81	408	1883
CUNY Graduate School.	1061	236	98	138	3	128	42	4	46	31	67	180	0	180	182	265	356	1417
Rensselaer Polytech .	1445	451	202	249	48	753	79	38	124	132	129	44	1	43	19	1	68	1513
Univ of Cincinnati ..	1286	340	83	257	61	315	54	18	33	55	56	225	0	225	142	147	726	2012
Univ of Kentucky	1276	187	73	114	7	118	19	15	9	30	107	369	185	184	326	162	605	1881
US Internat'l Univ ..	1012	0	0	0	1	0	0	0	0	0	1	0	0	0	27	983	286	1298
Polytechnic Inst, NY.	1345	500	162	338	3	749	90	20	301	95	92	0	0	0	1	0	2	1347
Univ of Notre Dame ..	1232	405	178	227	1	272	56	21	40	77	146	135	1	134	218	55	494	1726
Boston University ...	905	164	87	77	46	0	0	0	0	0	41	210	0	210	164	280	1931	2836
Catholic Univ of Am .	1077	349	254	95	1	209	4	13	40	66	54	101	0	101	139	224	1165	2242
Rice University	1271	437	264	173	148	407	126	36	104	76	102	95	0	95	72	10	171	1442
U of Cal, Riverside .	1200	280	142	138	30	0	0	0	0	0	92	571	187	384	171	56	107	1307
Vanderbilt University	1146	289	139	150	0	157	23	22	40	17	49	264	0	264	209	178	588	1734
University of Hawaii.	1070	134	32	102	92	43	0	1	27	0	6	390	122	268	307	98	125	1195
Illinois Inst Tech ..	1096	220	73	147	2	489	88	37	122	115	87	57	0	57	15	226	23	1119
SUNY at Stony Brook .	957	307	214	93	28	142	0	0	36	49	135	129	1	128	72	144	131	1089
U of Cal, Santa Barb.	1027	266	83	183	49	134	14	0	72	22	62	181	1	180	259	76	413	1440
Tulane Univ of La ...	969	126	48	78	19	127	55	14	5	39	97	328	0	328	187	85	563	1532
University of Houston	963	175	48	127	4	240	84	9	54	64	71	122	0	122	55	296	537	1500
Georgia Inst of Tech.	1073	334	117	217	11	661	78	55	111	143	51	7	0	7	2	7	4	1077
George Washington U .	828	55	18	37	26	173	0	3	45	32	71	205	1	204	186	112	927	1755
Temple University ...	853	236	98	138	0	0	0	0	0	0	37	203	0	203	103	274	1468	2321
West Virginia Univ ..	922	136	46	90	30	190	34	49	19	46	1	366	65	301	79	120	514	1436
Univ of Delaware	890	314	70	244	27	258	143	13	23	52	51	126	18	108	18	96	152	1042
Fordham University ..	636	162	45	117	2	0	0	0	0	0	7	118	0	118	114	233	827	1463
Lehigh University ...	935	222	96	126	33	465	84	92	41	112	100	54	0	54	35	26	307	1242
Utah State University	897	89	35	54	15	173	0	70	30	15	0	446	200	246	64	110	334	1231
Sthrn Ill U Carbondl.	793	86	19	67	2	1	0	0	0	0	26	161	1	160	277	240	1123	1916
Arizona State Univ ..	807	181	59	122	18	206	5	9	71	41	41	110	0	110	44	207	1084	1891
Univ of New Mexico ..	785	165	70	95	58	219	9	30	104	40	95	78	0	78	68	102	815	1600
St Louis University .	689	131	63	68	67	0	0	0	0	0	53	165	0	165	99	174	970	1659
Brandeis University .	630	240	136	104	0	2	0	0	1	0	81	152	0	152	107	48	517	1147
American University .	545	113	61	52	0	2	0	0	0	0	27	5	0	5	303	95	755	1300

See footnotes at end of table.

Table 9. Distribution of science and engineering doctorates conferred at top 100 doctorate-producing institutions[a] by major field and sex: 1960-81 - Con.

Female

Field of study

Doctorate-producing institution	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total[1] non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-Total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio-logy				
Univ of Cal, Berkeley	1277	130	33	97	23	32	4	2	5	2	74	443	13	430	359	216	1154	2431
Univ of Ill, Urbana .	827	118	20	98	12	18	1	1	5	3	52	307	38	269	162	158	1132	1959
Univ of Wis, Madison.	987	83	13	70	24	12	1	2	1	1	46	426	56	370	216	180	1344	2331
Mass Inst of Tech ...	478	118	32	86	22	51	7	7	4	3	35	135	9	126	98	19	41	519
Univ of Michigan	1004	63	16	47	22	13	2	1	0	2	29	272	3	269	264	341	1382	2386
Purdue University ...	514	55	13	42	2	25	2	3	7	2	18	185	24	161	67	162	412	926
Stanford University .	627	53	20	33	30	42	1	3	12	4	40	164	1	163	170	128	770	1397
Cornell University ..	764	77	17	60	4	17	2	1	6	1	38	285	51	234	200	143	504	1268
Ohio State University	795	86	15	71	5	7	1	0	0	0	24	250	17	233	159	264	1352	2147
Univ of Minnesota ...	779	69	8	61	1	13	5	0	4	1	19	236	27	209	139	302	894	1673
Harvard University ..	946	78	33	45	14	6	0	0	0	1	50	292	0	292	336	170	1332	2278
Univ of Calif, L.A .	866	65	17	48	24	22	2	2	5	1	26	267	1	266	255	207	1116	1982
Columbia University .	1309	99	32	67	18	12	2	1	0	2	33	238	0	238	461	448	1543	2852
Michigan State Univ .	537	54	5	49	6	4	0	1	0	0	22	182	41	141	101	168	919	1456
Univ of Texas, Austin	647	53	14	39	4	10	2	1	1	0	22	187	0	187	184	187	998	1645
University of Chicago	741	64	16	48	10	0	0	0	0	0	27	163	0	163	284	193	663	1404
New York University .	1010	46	14	32	6	4	1	0	0	0	56	227	1	226	206	465	1801	2811
Iowa State University	266	41	3	38	2	7	2	2	1	0	14	114	31	83	46	42	164	430
Univ of Washington ..	550	53	7	46	15	3	0	0	0	1	22	188	9	179	130	139	521	1071
Penn State University	386	49	11	38	17	5	1	1	0	0	16	119	19	100	48	132	644	1030
Univ of Pennsylvania.	633	84	15	69	1	9	1	0	0	0	28	222	0	222	187	102	803	1436
Yale University	573	78	24	54	7	6	3	0	0	1	26	215	4	211	150	91	759	1332
Northwestern Univ ...	576	69	10	59	2	28	2	4	0	2	20	129	0	129	162	166	708	1284
U of Md, College Park	514	74	33	41	7	9	0	0	6	1	18	156	20	136	60	190	879	[illegible]
Princeton University.	216	39	11	28	3	11	3	2	1	1	21	32	0	32	84	26	187	403
Indiana University ..	473	35	9	26	3	0	0	0	0	0	16	164	0	164	161	94	1533	2006
University of Florida	329	30	5	25	3	11	2	1	0	0	15	97	21	76	64	136	563	892
Rutgers, St U of N.J.	546	44	12	32	7	3	0	1	0	0	35	254	21	233	85	118	698	1244
Univ of Cal, Davis ..	350	30	8	22	4	9	1	1	1	0	5	233	8	225	39	30	68	418
Texas A & M Univ	157	28	3	25	10	7	0	1	0	2	12	65	26	39	18	17	175	332
Univ of Colorado	417	29	10	19	7	3	0	0	2	0	8	116	0	116	128	126	545	962
Case Western Reserve.	340	38	9	29	2	11	1	0	0	0	18	89	0	89	68	114	472	812
U of NC Chapel Hill .	502	40	6	34	4	2	0	0	0	0	20	159	0	159	145	133	659	1161
Univ of Pittsburgh ..	421	50	15	35	6	6	2	0	0	1	9	136	0	136	87	127	1083	1504
Univ of Southern Cal.	389	38	2	36	3	10	0	0	6	0	9	78	0	78	90	161	1231	1620
U of Missouri, Columb	242	13	2	11	3	8	0	1	3	1	4	79	21	58	71	64	364	606
University of Kansas.	377	37	3	34	4	2	0	0	1	1	5	110	0	110	52	167	437	814
Johns Hopkins Univ ..	369	45	3	42	10	10	0	0	0	2	10	153	0	153	90	51	383	752
University of Arizona	283	20	9	11	8	5	0	2	0	1	1	91	11	80	72	86	298	581
NC St Univ, Raleigh .	168	14	4	10	1	10	2	1	1	1	8	90	16	74	19	26	86	254
University of Iowa ..	246	23	4	19	1	5	3	0	0	0	18	86	0	86	41	72	706	952
U of Tenn, Knoxville.	247	21	9	12	2	3	0	0	0	0	8	117	14	103	31	65	496	743
Duke University	376	37	6	31	1	2	0	0	1	0	11	178	1	177	71	76	276	652
Oregon State Univ ...	158	20	1	19	10	0	0	0	0	0	16	94	26	68	13	5	111	269
Cal Inst of Tech	120	54	17	37	5	11	2	0	2	0	5	41	0	41	1	3	0	120
SUNY at Buffalo	375	27	2	25	0	8	0	1	1	0	8	142	0	142	84	106	453	828
Univ of Rochester ...	327	51	15	36	0	1	0	0	1	0	15	133	0	133	46	81	281	608
University of Utah ..	182	12	1	11	5	4	1	1	1	0	3	43	0	43	22	93	320	502
Univ of Massachusetts	383	53	4	49	4	7	0	1	0	2	11	110	19	91	78	120	618	1001
Oklahoma State Univ .	129	11	4	7	0	3	1	0	1	0	8	45	5	40	25	37	359	488

See footnotes at end of table.

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Table 9. Distribution of science and engineering doctorates conferred at top 100 doctorate-producing institutions [a] by major field and sex: 1960-81 - Con.

Female

		Field of study																	
		Physical sciences				Engineering						Life sciences							
Doctorate-producing institution	Total sci & eng	Sub-total	Phys& astr	Chem-istry	Earth & env sci	Sub-total	Chem	Civil	Elec	Mech	Math sci	Sub-total	Agri sci	Bio-logy	Soc sci	Psych	Total[1] non-sci & eng	Total all flds
Syracuse University .	258	18	6	12	0	4	1	0	1	0	20	37	0	37	60	119	456	714
University of Georgia	279	8	0	8	2	0	0	0	0	0	8	94	11	83	37	130	572	851
Louisiana State Univ.	190	29	4	25	2	1	1	0	0	0	9	59	18	41	34	56	289	479
Univ of Oklahoma	216	4	1	3	6	11	0	3	1	1	8	87	0	87	28	72	409	625
Colorado State Univ .	110	8	2	6	3	2	0	1	0	0	8	47	11	36	7	35	42	152
Washington University	305	25	7	18	3	5	0	0	1	0	11	93	0	93	70	98	219	524
Florida State Univ ..	254	33	7	26	4	0	0	0	0	0	14	40	1	39	51	112	1061	1315
Univ of Nebraska	188	19	0	19	1	5	1	0	2	1	7	60	13	47	34	62	361	549
Brown University	233	40	8	32	7	4	0	0	2	1	14	61	0	61	65	42	256	489
Univ of Oregon, Eug .	297	16	7	9	3	0	0	0	0	0	8	63	0	63	63	144	522	819
Va Polytechnic Inst .	121	13	2	11	5	5	1	1	0	1	13	59	10	49	17	9	213	334
Carnegie-Mellon Univ.	69	25	5	20	0	7	2	0	2	0	18	6	0	6	5	8	57	126
Washington State U ..	160	6	3	3	0	1	0	0	0	0	4	51	11	40	51	47	111	271
Univ of Connecticut .	287	20	4	16	0	1	0	0	0	0	4	108	3	105	59	95	375	662
Univ of Virginia	173	29	9	20	0	7	2	0	0	0	7	68	0	68	25	37	472	645
Univ of Cal San Diego	229	38	13	25	18	1	0	0	0	0	13	91	0	91	34	34	66	295
Wayne State Univ	305	26	4	22	0	4	3	0	0	0	12	83	0	83	53	127	551	856
Kansas State Univ ...	133	14	1	13	0	2	1	0	0	1	9	78	29	49	16	14	211	344
CUNY Graduate School.	529	30	6	24	4	0	0	0	0	0	27	108	0	108	100	260	416	945
Rensselaer Polytech .	60	28	9	19	3	8	2	0	2	0	9	12	0	12	0	0	14	74
Univ of Cincinnati ..	216	41	5	36	4	5	1	0	0	0	9	51	0	51	22	84	310	526
Univ of Kentucky	165	14	4	10	0	2	0	0	0	1	10	62	23	39	33	44	247	412
US Internat'l Univ ..	427	0	0	0	0	0	0	0	0	0	0	0	0	0	6	421	90	517
Polytechnic Inst, NY.	47	31	8	23	0	5	1	0	3	0	11	0	0	0	0	0	0	47
Univ of Notre Dame ..	157	41	3	38	0	2	1	0	0	0	11	46	0	46	42	15	146	303
Boston University ...	468	31	5	26	3	0	0	0	0	0	11	143	0	143	83	197	1038	1506
Catholic Univ of Am .	289	26	7	19	1	3	1	0	1	0	13	61	0	61	64	121	628	917
Rice University	94	19	5	14	10	8	1	0	5	1	10	28	0	28	10	9	125	219
Univ of Cal Riverside	147	20	9	11	3	0	0	0	0	0	11	42	7	35	43	28	66	213
Vanderbilt University	181	16	3	13	0	5	0	0	0	0	10	69	0	69	26	55	136	317
University of Hawaii.	203	11	5	6	4	1	0	0	1	0	0	68	12	56	72	47	54	257
Illinois Inst Tech ..	145	18	4	14	0	7	0	0	1	4	9	21	0	21	12	78	2	147
SUNY at Stony Brook .	220	34	19	15	2	3	0	0	0	0	12	37	0	37	42	90	77	297
U of Cal, Santa Barb.	146	16	3	13	1	1	1	0	0	0	10	46	0	46	45	27	115	261
Tulane Univ of La ...	186	19	4	15	3	1	0	0	0	0	12	81	0	81	36	34	208	394
University of Houston	178	22	1	21	0	2	2	0	0	0	16	24	0	24	10	104	366	544
Georgia Inst of Tech.	20	10	3	7	1	1	0	0	0	0	4	0	0	0	0	4	1	21
George Washington U .	254	10	3	7	2	3	0	0	0	0	9	104	0	104	30	96	309	563
Temple University ...	229	18	5	13	0	0	0	0	0	0	13	61	0	61	20	117	569	798
West Virginia Univ ..	116	6	1	5	4	0	0	0	0	0	0	59	4	55	2	45	170	286
Univ of Delaware	99	20	5	15	3	4	1	1	0	0	4	27	0	27	5	36	71	170
Fordham University ..	350	40	4	36	1	0	0	0	0	0	2	52	0	52	49	206	520	870
Lehigh University ...	38	7	1	6	1	3	1	0	0	1	11	7	0	7	6	3	107	145
Utah State University	65	5	1	4	0	3	0	1	0	0	0	36	11	25	9	12	55	120
Sthrn Il Un Carbondl.	141	8	0	8	1	1	0	0	0	0	0	24	0	24	37	70	372	513
Arizona State Univ ..	127	10	1	9	0	2	0	0	0	0	4	27	0	27	13	71	394	521
Univ of New Mexico ..	106	14	5	9	0	1	0	0	1	0	6	19	0	19	25	41	328	434
St Louis University .	200	12	2	10	0	0	0	0	0	0	20	50	0	50	38	80	502	702
Brandeis University .	205	37	6	31	0	0	0	0	0	0	13	54	0	54	82	19	252	457
American University .	143	20	3	17	0	0	0	0	0	0	3	1	0	1	74	45	218	361

[a] The top 100 institutions are ranked according to S/E doctorate production (column 2). For all three panels (total, men, women) institutions are listed in the order of ranking for total S/E doctorate production. Institutional rankings for men and women may differ.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

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Table 10. Distribution of new science and engineering doctorates by state of high school last attended [a] and state of doctorate-granting institution: 1981

State of high school	Total	State of doctoral institution															
		AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HA	ID	IL	IN	IA
Total, all states	12793	85	2	111	38	1859	260	223	27	180	271	232	50	28	782	417	202
Alabama	103	23	0	2	0	6	2	1	0	0	4	10	0	0	1	2	2
Alaska	13	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Arizona	80	1	0	3	0	28	0	0	0	0	0	0	1	2	4	3	2
Arkansas	63	2	0	0	10	4	0	0	0	1	1	3	0	1	5	3	0
California	1405	3	0	16	1	768	26	20	1	9	7	4	14	4	42	17	3
Colorado	167	0	0	4	1	24	48	0	0	1	3	1	0	3	7	4	1
Connecticut	304	1	1	1	0	40	8	41	0	10	4	1	1	0	12	3	4
Delaware	55	0	0	1	0	2	3	1	4	1	1	0	0	0	3	1	1
Florida	252	2	0	1	0	17	4	3	0	5	60	12	0	1	9	6	1
Georgia	160	3	0	0	1	11	1	1	0	3	12	57	0	0	2	7	4
Hawaii	37	0	0	0	0	9	1	1	0	0	1	1	8	0	3	2	0
Idaho	49	0	0	0	0	5	2	1	0	0	0	0	0	4	1	3	2
Illinois	750	5	0	5	2	89	14	5	1	3	13	9	3	1	253	34	19
Indiana	244	1	0	0	1	23	6	3	0	1	4	1	1	0	24	64	4
Iowa	190	0	0	1	1	16	7	0	0	0	2	2	0	0	16	5	47
Kansas	148	0	0	0	1	18	2	0	0	1	0	1	0	0	11	5	7
Kentucky	99	5	0	0	2	7	1	0	0	1	5	2	0	0	7	11	0
Louisiana	145	5	0	1	1	14	4	0	0	3	2	8	0	1	0	2	4
Maine	51	0	0	0	0	4	0	1	0	1	1	2	0	2	1	1	1
Maryland	331	1	0	2	1	28	4	5	2	31	9	2	0	0	21	3	1
Massachusetts	492	2	0	3	0	47	6	15	0	5	6	1	2	0	14	13	4
Michigan	465	0	0	4	0	45	7	6	0	4	7	6	3	1	35	14	4
Minnesota	211	0	0	4	0	20	6	0	0	2	4	2	0	0	13	7	13
Mississippi	73	1	0	0	1	2	0	0	0	0	3	3	0	0	3	2	0
Missouri	248	0	0	1	5	23	7	3	0	2	1	2	1	1	12	11	9
Montana	32	0	0	3	0	5	1	1	0	1	0	0	0	0	1	1	1
Nebraska	100	0	0	2	0	11	6	0	0	0	0	0	0	0	8	3	5
Nevada	19	0	0	1	0	3	1	0	0	1	0	0	0	0	0	0	0
New Hampshire	59	0	0	1	0	6	3	3	0	0	0	0	0	0	6	1	0
New Jersey	661	3	0	4	0	56	1	16	4	10	18	6	0	2	26	18	10
New Mexico	78	1	0	2	0	12	4	1	0	1	0	1	0	0	2	2	1
New York	1936	4	0	17	1	183	26	48	8	19	29	26	5	1	80	43	8
North Carolina	178	5	0	1	1	9	0	1	0	2	6	9	0	0	5	3	3
North Dakota	32	1	0	1	1	2	3	0	0	0	0	2	0	0	1	1	1
Ohio	651	0	1	7	0	58	9	9	2	2	17	5	3	1	40	35	7
Oklahoma	123	2	0	1	2	9	0	0	0	0	2	1	0	0	6	3	2
Oregon	120	0	0	2	0	23	7	1	0	0	1	2	2	0	3	3	0
Pennsylvania	818	3	0	3	1	54	7	11	3	18	6	15	2	0	27	32	4
Rhode Island	66	0	0	0	0	4	1	5	0	2	0	0	0	0	1	2	1
South Carolina	85	3	0	1	0	6	1	0	1	0	2	9	0	0	2	3	2
South Dakota	35	0	0	0	1	2	3	0	0	1	0	0	0	0	1	1	1
Tennessee	122	3	0	1	1	8	0	1	0	1	8	8	0	0	4	1	2
Texas	487	1	0	7	0	34	12	2	0	5	11	6	2	1	11	7	6
Utah	77	0	0	1	0	11	1	0	0	2	0	0	0	1	2	3	1
Vermont	18	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	1
Virginia	302	2	0	3	0	22	3	4	1	13	9	8	1	0	13	13	2
Washington	204	0	0	1	0	40	6	3	0	1	2	1	1	0	11	6	4
West Virginia	59	0	0	0	0	2	0	2	0	2	2	2	0	0	5	3	0
Wisconsin	281	1	0	2	2	35	3	6	0	2	2	0	0	0	20	8	7
Wyoming	27	1	0	1	0	2	1	0	0	0	0	0	0	1	2	2	0
District of Columbia	47	0	0	0	0	4	1	0	0	11	0	1	0	0	2	0	0
Puerto Rico	41	0	0	0	0	5	1	1	0	2	5	0	0	0	2	0	0

See footnotes at end of table.

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Table 10. Distribution of new science and engineering doctorates by state of high school last attended[a] and state of doctorate-granting institution: 1981 - Con.

State of high school	State of doctoral institution																	
	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC
Total, all states	148	82	100	14	238	677	506	238	67	225	29	93	13	54	291	75	1372	366
Alabama	0	0	2	0	2	2	4	0	6	1	0	0	0	0	3	1	1	4
Alaska	0	0	0	0	0	2	1	0	0	0	0	0	0	0	1	1	1	0
Arizona	1	1	0	0	0	2	1	0	0	1	0	2	1	0	0	1	1	1
Arkansas	0	0	0	0	1	0	0	1	1	1	0	1	0	0	0	0	4	0
California	10	2	4	2	14	44	27	12	1	12	2	3	9	4	13	11	57	13
Colorado	4	0	0	0	5	5	3	3	0	1	0	3	0	0	1	1	3	2
Connecticut	2	3	0	1	4	28	12	0	1	2	0	0	0	6	5	2	27	8
Delaware	0	0	0	0	1	3	1	0	0	1	0	0	0	2	2	0	3	7
Florida	2	1	2	0	8	11	4	3	3	6	0	0	0	0	2	0	12	21
Georgia	3	2	0	0	0	4	1	2	1	1	0	1	0	1	1	1	7	15
Hawaii	1	0	0	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	1	0	0	0	0	1	1	1	0	0	0	2	0	0	1	0	3	1
Illinois	7	8	4	0	6	27	24	18	1	21	0	3	0	1	5	4	41	7
Indiana	4	3	2	0	4	7	10	5	0	5	2	3	0	0	2	0	7	4
Iowa	7	1	1	0	2	2	6	8	1	2	2	3	1	0	2	0	4	8
Kansas	33	1	0	0	0	8	3	2	2	8	0	3	1	0	0	1	6	3
Kentucky	0	19	4	0	2	1	6	0	2	2	0	0	0	0	0	0	1	2
Louisiana	1	0	36	0	0	7	1	1	8	2	0	1	0	0	1	1	5	5
Maine	0	0	0	4	1	6	3	2	0	1	1	0	0	0	0	1	5	1
Maryland	0	1	0	0	47	17	7	4	1	3	0	0	0	1	7	0	23	23
Massachusetts	3	1	0	1	6	125	17	10	0	9	1	3	0	9	8	2	68	14
Michigan	3	0	3	0	10	12	166	13	0	6	2	1	0	0	6	2	21	6
Minnesota	4	0	0	1	3	3	10	56	0	1	1	3	0	1	4	0	4	0
Mississippi	1	2	6	0	1	1	2	0	21	0	0	0	0	0	0	0	2	3
Missouri	11	1	4	0	1	11	5	5	1	63	0	4	0	1	3	1	6	3
Montana	0	0	0	0	0	0	0	2	0	1	2	0	0	1	0	0	2	0
Nebraska	3	0	0	0	2	3	7	0	0	0	1	22	0	0	0	1	4	0
Nevada	0	0	0	0	0	1	1	0	0	1	1	0	1	0	1	1	0	0
New Hampshire	0	0	1	0	0	9	0	3	0	1	0	0	0	1	1	0	14	1
New Jersey	2	1	3	0	15	44	19	5	0	7	0	2	0	2	99	0	113	19
New Mexico	1	0	1	0	1	2	2	1	1	1	0	0	0	0	0	18	3	0
New York	12	9	7	2	35	123	52	23	4	17	2	9	0	12	62	3	731	36
North Carolina	1	2	1	0	3	7	6	1	1	2	0	0	0	0	2	0	4	63
North Dakota	1	0	0	0	0	0	1	1	0	1	0	2	0	0	0	0	2	2
Ohio	7	9	3	1	16	29	25	9	1	8	1	4	0	1	7	1	29	16
Oklahoma	5	1	0	0	0	1	1	2	3	3	0	4	0	0	0	1	0	2
Oregon	1	1	0	0	2	7	3	1	0	1	1	0	0	0	1	1	7	2
Pennsylvania	4	4	2	1	17	49	25	13	1	6	3	3	0	2	24	3	82	15
Rhode Island	0	0	0	0	4	8	3	0	0	1	0	0	0	0	1	0	6	5
South Carolina	0	1	1	0	2	0	2	0	2	1	0	1	0	0	3	0	1	5
South Dakota	2	0	0	0	0	1	0	5	0	1	0	2	0	0	1	1	0	0
Tennessee	1	0	1	0	0	4	3	1	1	2	0	1	0	0	2	0	3	4
Texas	5	3	6	0	5	9	6	1	2	8	0	3	0	1	7	5	7	8
Utah	0	0	0	0	0	2	2	1	0	2	2	1	0	1	1	2	3	0
Vermont	0	0	0	0	0	2	1	0	0	0	0	0	0	1	1	0	3	0
Virginia	1	0	4	0	6	13	8	3	0	0	1	0	0	1	8	2	12	24
Washington	1	0	1	0	3	8	4	2	0	2	2	0	0	2	1	2	14	1
West Virginia	0	3	0	0	1	2	4	1	0	0	0	0	0	0	0	0	1	2
Wisconsin	2	2	0	0	2	8	15	16	1	9	2	1	0	3	1	3	10	5
Wyoming	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0
District of Columbia	0	0	1	0	4	8	1	1	0	0	0	0	0	0	1	0	4	1
Puerto Rico	0	0	0	0	1	4	0	0	0	1	0	1	0	0	0	0	3	4

See footnotes at end of table.

Table 10. Distribution of new science and engineering doctorates by state of high school last attended[a] and state of doctorate-granting institution: 1981 - Con.

State of high school	State of doctoral institution																	
	ND	OH	OK	OR	PA	PR	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Total, all states	42	431	116	152	600	3	97	82	15	219	629	130	24	247	243	42	321	45
Alabama	0	1	0	0	2	0	0	0	0	7	7	0	0	3	0	1	3	0
Alaska	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0
Arizona	0	1	1	3	2	0	0	1	0	1	6	1	0	2	2	0	3	1
Arkansas	0	0	2	0	1	0	1	0	0	5	11	1	0	0	1	0	1	1
California	1	15	5	41	24	0	4	1	0	9	27	19	2	7	49	2	20	4
Colorado	2	3	3	1	4	0	0	1	1	1	6	3	0	2	9	0	2	1
Connecticut	0	8	0	2	24	0	7	1	2	5	8	0	2	6	7	0	4	0
Delaware	0	2	0	1	3	0	1	0	0	0	3	1	0	4	0	1	1	0
Florida	1	8	1	2	2	0	2	4	0	10	11	1	0	6	1	0	6	1
Georgia	1	0	1	0	1	0	0	3	1	3	2	0	0	2	3	0	1	0
Hawaii	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Idaho	0	0	0	3	1	0	0	0	0	1	1	8	0	0	6	0	0	0
Illinois	4	10	8	6	8	0	0	1	1	8	10	9	0	1	11	0	35	5
Indiana	2	12	1	0	7	0	1	0	0	2	10	0	0	7	2	0	9	0
Iowa	2	3	3	2	3	0	0	0	2	6	6	2	0	1	5	0	8	0
Kansas	1	4	3	1	3	0	0	0	2	3	6	1	0	1	3	0	3	0
Kentucky	0	5	1	0	0	0	0	0	0	2	9	0	0	0	0	0	2	0
Louisiana	0	1	1	0	2	0	2	0	0	2	18	1	0	1	1	0	2	0
Maine	0	0	1	0	4	0	1	0	0	0	0	2	1	0	2	0	1	0
Maryland	1	6	1	2	22	0	2	2	0	4	12	3	1	15	4	4	7	1
Massachusetts	2	8	2	3	15	0	18	2	0	3	17	1	3	10	4	0	9	0
Michigan	0	15	1	7	5	0	0	1	0	4	14	5	1	3	6	2	13	1
Minnesota	7	3	0	5	2	0	1	0	1	3	6	2	0	3	5	0	9	2
Mississippi	0	0	0	1	0	0	0	1	0	4	9	0	0	3	0	0	1	0
Missouri	0	6	4	2	4	0	2	0	0	6	11	1	0	3	3	1	5	2
Montana	0	0	0	1	1	0	0	0	0	0	2	0	0	0	5	0	0	1
Nebraska	0	1	2	1	0	0	2	0	0	2	4	0	1	2	1	0	2	4
Nevada	0	0	0	2	0	0	0	0	0	1	2	0	0	0	1	0	0	0
New Hampshire	0	0	0	1	1	0	2	0	0	2	2	0	0	0	0	0	0	0
New Jersey	1	22	2	4	56	0	8	4	0	10	12	5	2	13	4	2	9	2
New Mexico	1	2	0	3	1	0	1	0	0	0	7	1	0	1	0	0	2	1
New York	2	35	4	6	92	0	13	10	1	12	46	9	6	22	10	3	26	2
North Carolina	0	3	0	1	6	0	0	7	0	14	3	1	0	4	0	0	1	0
North Dakota	6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Ohio	1	181	2	3	23	0	2	4	0	5	19	2	1	13	11	2	16	3
Oklahoma	0	0	38	1	2	0	1	1	0	2	16	3	0	3	3	0	2	0
Oregon	1	1	0	23	1	0	2	0	0	0	4	4	0	1	8	0	3	0
Pennsylvania	0	40	3	3	228	0	7	7	2	11	17	4	1	17	3	14	21	0
Rhode Island	0	3	0	1	1	0	11	0	0	2	1	1	1	0	0	0	0	1
South Carolina	0	1	0	0	0	0	0	23	0	4	4	1	0	3	0	0	0	0
South Dakota	0	0	1	0	2	0	0	0	1	0	4	0	0	0	2	0	1	1
Tennessee	0	1	1	1	6	0	0	1	0	43	3	0	0	3	1	0	1	0
Texas	2	5	16	0	3	0	2	2	0	9	245	6	0	4	4	0	6	2
Utah	0	2	0	3	2	0	0	0	0	0	2	22	0	0	2	0	3	2
Vermont	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	2
Virginia	1	5	1	5	11	0	1	4	0	6	8	0	0	72	3	2	6	0
Washington	0	2	2	8	5	0	0	0	0	3	3	4	0	1	53	0	4	0
West Virginia	0	4	1	0	2	0	0	1	1	1	3	0	0	5	1	8	0	0
Wisconsin	2	10	2	2	9	0	2	0	0	1	8	3	1	0	3	0	70	0
Wyoming	0	0	1	0	0	0	0	0	0	0	3	1	0	2	0	0	1	4
District of Columbia	0	0	0	0	5	0	0	0	0	0	0	1	0	1	0	0	0	0
Puerto Rico	0	2	1	0	2	3	0	0	0	2	0	1	0	0	0	0	0	0

[a] Only doctorates who provided data on the state of high school last attended are included in this table.

SOURCES: National Science Foundation and National Research Council

Table 11. Top 300 baccalaureate institutions of new science and engineering doctorates by major field: 1960-81[a]

Field of study

Institution	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total[1] non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio-logy				
Univ of Cal, Berkeley	5393	1058	581	477	176	923	96	79	237	185	340	1200	126	1074	1012	684	2133	7526
Mass Inst of Tech ...	4612	1448	1100	348	188	1787	187	81	638	234	545	344	6	338	225	75	307	4919
Univ of Ill, Urbana .	4009	739	286	453	122	1023	118	94	293	183	152	1052	270	782	502	419	1840	5849
CUNY-City College ...	3831	774	339	435	141	656	101	37	249	128	233	497	9	488	526	1004	1614	5445
Univ of Michigan	3750	621	303	318	108	817	97	37	160	160	230	682	99	583	622	670	2103	5853
Cornell Univ, NY	3637	613	390	223	102	689	99	41	173	79	213	1094	224	870	569	357	1132	4769
U of Wis, Madison ...	3244	477	176	301	195	564	99	54	119	113	133	959	261	698	487	429	1896	5140
Univ of Cal, L.A. ...	3182	575	277	298	149	389	23	20	86	46	206	627	13	614	590	646	1950	5132
Harvard University ..	2845	630	420	218	107	118	3	7	37	12	399	469	11	458	779	335	1716	4561
Penn State University	2780	433	185	248	158	587	91	31	93	75	93	856	291	565	293	360	1284	4064
U of Minnesota, Minn.	2717	406	189	217	88	480	87	36	130	109	122	769	237	532	436	416	1820	4537
Univ of Texas, Austin	2705	486	249	237	102	571	73	65	157	132	214	508	18	490	439	385	1574	4279
Purdue Univ, Indiana.	2597	379	148	231	35	1012	113	59	251	249	122	671	240	431	203	175	780	3377
CUNY-Brooklyn College	2424	430	122	308	53	38	2	0	5	4	187	440	2	438	394	882	1685	4109
Ohio State University	2306	311	156	155	69	394	41	14	107	52	87	740	225	515	400	305	1747	4053
Michigan State Univ .	2266	271	118	153	79	293	35	16	72	67	118	818	267	551	331	356	1515	3781
Stanford Univ, Cal ..	2118	313	222	91	128	394	36	37	118	52	139	371	12	359	443	330	1271	3389
Rutgers St U of N. J.	2097	398	108	290	100	248	21	13	48	41	74	650	154	496	279	348	1002	3099
Univ of Washington ..	2012	333	166	167	133	365	42	30	90	49	106	428	108	320	386	261	1035	3047
Iowa State University	2003	290	117	173	56	550	87	41	142	65	82	680	375	305	237	108	483	2496
Columbia Univ, NY ...	1841	401	223	178	56	310	75	18	79	47	177	238	4	234	371	288	1166	3007
University of Chicago	1796	382	240	142	51	23	2	0	4	6	210	372	2	370	452	306	935	2731
New York University .	1756	229	94	135	52	269	34	23	56	34	105	277	1	276	299	525	1505	3261
Rensselaer Poly, NY .	1651	544	333	211	51	677	91	31	163	85	148	137	4	133	37	57	126	1777
Yale Univ, Conn	1638	341	232	109	69	167	25	6	55	24	141	269	11	258	379	272	1238	2876
Princeton Univ, NJ ..	1529	381	265	116	91	280	54	22	68	30	178	188	3	185	282	129	876	2405
Case Western Reserve.	1515	471	257	214	29	443	46	15	91	64	118	165	1	164	119	170	497	2012
Cal Institute of Tech	1505	636	480	156	98	327	39	11	128	38	213	165	1	164	43	23	36	1541
University of Florida	1496	239	107	132	37	311	30	16	86	51	71	391	130	261	229	218	1023	2519
University of Utah ..	1450	199	93	106	63	342	67	19	72	37	88	307	15	292	237	214	1111	2561
Univ of Pennsylvania.	1449	260	118	142	24	241	31	12	83	37	98	268	2	266	321	237	938	2387
Univ of Col, Boulder.	1441	238	126	112	80	217	33	29	60	29	81	271	7	264	331	223	798	2239
Univ of Maryland	1408	198	103	95	29	215	39	14	57	38	63	445	125	320	198	260	886	2294
U of Missouri, Columb	1318	148	61	87	43	228	27	14	75	40	42	455	181	274	250	152	919	2237
Brigham Young U, Utah	1299	230	96	134	48	138	28	19	28	33	36	333	95	238	293	221	1397	2696
Northwestern U, Ill .	1295	220	81	139	29	276	50	21	59	43	68	188	4	184	259	255	1077	2372
Oklahoma State Univ .	1287	121	44	77	21	312	42	35	69	76	51	551	290	261	152	79	698	1985
University of Kansas.	1284	237	100	137	47	263	45	22	70	48	72	267	4	263	211	187	830	2114
CUNY-Queens College .	1255	210	74	136	37	33	5	1	6	2	76	186	1	185	212	501	986	2241
Texas A&M University.	1255	154	77	77	56	364	61	57	58	65	43	488	240	248	113	35	331	1586
U of Notre Dame, Ind.	1252	266	133	133	36	398	64	31	83	71	80	165	1	164	177	130	628	1880
Brown University, RI.	1243	258	122	136	65	129	2	5	32	35	134	229	3	226	207	221	579	1822
Carnegie-Mellon U, PA	1196	320	185	135	15	527	76	58	173	82	139	66	1	65	49	80	241	1437
Univ of Rochester, NY	1168	307	153	154	51	122	34	2	17	32	80	233	2	231	129	246	704	1872
Rice Univ, Texas	1127	359	220	139	54	253	56	14	51	46	148	152	1	151	101	60	286	1413
Univ of Cal, Davis ..	1125	135	35	100	25	93	6	14	18	17	33	649	121	528	124	66	190	1315
Oberlin College, Ohio	1111	214	87	127	34	14	0	1	4	1	89	205	3	202	319	236	905	2016
Indiana U, Bloomingt.	1081	176	77	99	72	7	0	0	2	2	49	284	10	274	285	203	1450	2531
Univ of Nebraska	1077	140	49	91	26	186	39	16	48	35	58	381	177	204	191	95	872	1949
N. C. St U, Raleigh .	1076	155	89	66	19	396	49	30	67	93	68	327	167	160	92	19	199	1275
La St Univ & A&M Col.	1071	188	88	100	30	195	69	10	30	44	55	342	157	185	140	121	625	1696
Univ of Oklahoma	1040	174	100	74	62	251	50	14	50	38	62	149	6	143	189	153	709	1749
Johns Hopkins U, MD .	1033	203	114	89	37	238	29	10	86	34	67	256	3	253	113	119	310	1351
Colorado State Univ .	1029	96	30	66	28	86	3	22	16	23	24	615	262	353	99	81	328	1357
Wayne State Univ, MI.	1023	191	71	120	27	128	24	12	28	29	62	195	12	183	187	233	1327	2350
Kansas State Univ ...	1007	124	56	68	27	211	24	20	48	49	26	444	210	234	120	55	429	1436
Univ of Pittsburgh ..	997	166	44	122	25	200	39	10	45	38	42	220	3	217	147	197	849	1846
U of Mass, Amherst ..	994	156	35	121	33	114	14	16	22	23	28	382	109	273	133	148	536	1530
Oregon State Univ ...	992	177	50	127	69	193	48	18	38	29	54	398	159	239	61	40	339	1331
Georgia Inst Tech ...	989	260	159	101	20	472	73	32	91	95	93	50	3	47	48	46	144	1133
Duke University, NC .	985	187	70	117	33	122	3	18	41	27	41	274	14	260	126	202	658	1643
Dartmouth College, NH	979	158	79	79	101	78	4	5	22	11	105	162	14	148	251	124	620	1599
SUNY at Buffalo	970	166	43	123	39	114	12	7	30	31	41	229	6	223	157	224	766	1736
Univ of Connecticut .	936	151	35	116	27	141	6	21	30	39	28	320	52	268	141	128	493	1429
U of NC, Chapel Hill.	936	230	65	165	40	14	1	0	4	0	67	195	8	187	185	205	886	1822
University of Iowa ..	931	152	73	79	25	113	24	5	32	25	70	187	8	179	185	199	866	1797
Washington Univ, MO .	922	167	83	84	44	191	43	18	52	28	56	158	2	156	141	165	543	1465
Syracuse Univ, NY ...	901	128	44	84	39	128	21	7	30	23	21	205	7	198	199	131	827	1728
U of Tennessee, Knox.	899	126	75	51	12	249	34	12	60	32	34	272	127	145	123	83	575	1474
University of Arizona	899	112	59	53	57	156	11	20	57	10	34	247	64	183	163	130	527	1426
VPI & State Univ	895	132	74	58	26	380	48	37	48	113	39	224	84	140	61	33	226	1121
U of Cal, Santa Barb.	882	103	38	65	54	65	5	1	27	11	38	272	9	263	198	152	552	1434
Univ of Cincinnati ..	875	161	43	118	33	251	43	11	49	43	45	150	7	143	113	122	617	1492
Lehigh Univ, Penn....	845	207	91	116	38	351	68	21	60	65	59	85	6	79	48	57	157	1002
Polytech Inst of NY..	832	296	155	141	12	402	58	13	101	64	82	23	0	23	9	8	29	860
CUNY-Hunter College..	828	78	11	67	16	5	0	0	1	2	21	154	2	152	187	337	1061	1889
Swarthmore Coll, PA .	828	131	82	49	12	67	0	10	22	16	80	178	2	176	220	140	403	1231
Univ of Georgia	820	94	21	73	12	30	0	0	0	1	27	378	181	197	144	135	659	1479
Washington State U ..	820	116	40	76	34	120	6	16	27	18	39	307	124	183	136	68	377	1197
Utah State University	806	79	38	41	22	110	0	42	22	22	17	407	199	208	123	48	544	1350

See footnotes at end of table.

Table 11. Top 300 baccalaureate institutions of new science and engineering doctorates by major field: 1960-81 - Con.[a]

		Field of study																
		Physical sciences				Engineering						Life sciences						
Institution	Total sci & eng	Sub-total	Phys& astr	Chem-istry	Earth & env sci	Sub-total	Chem	Civil	Elec	Mech	Math sci	Sub-total	Agri sci	Bio-logy	Soc sci	Psych	Total[1] non-sci & eng	Total all flds
Temple Univ, Penn ...	802	163	47	116	18	10	0	0	3	0	54	167	3	164	160	230	904	1706
Texas Tech University	794	83	39	44	25	204	25	25	60	43	34	261	114	147	106	81	490	1284
San Diego State Univ.	783	107	42	65	37	26	0	3	3	3	41	179	13	166	162	231	546	1329
Boston University ...	769	112	34	78	31	32	0	1	1	10	21	174	3	171	157	242	1110	1879
Florida State Univ ..	757	112	60	52	59	35	0	1	7	6	59	128	6	122	199	165	1086	1843
Illinois Inst of Tech	755	216	100	116	7	337	54	22	96	68	74	39	1	38	39	43	92	847
U of Cal, Riverside .	749	185	67	118	43	9	0	0	2	2	59	226	23	203	137	90	213	962
Drexel Univ, Penn ...	745	211	80	131	16	371	45	23	83	87	36	76	3	73	19	16	96	841
Miami Univ, Ohio	737	148	67	81	39	21	0	0	1	2	36	191	24	167	171	131	605	1342
Fordham Univ, NY	733	216	82	134	9	7	3	0	0	0	60	134	8	126	141	166	712	1445
Auburn Univ, Alabama.	732	102	55	47	10	193	16	15	67	36	50	255	89	166	63	59	435	1167
West Virginia Univ ..	726	114	34	80	25	140	28	17	25	29	20	275	107	168	70	82	448	1174
Tufts Univ, Mass	709	93	36	57	36	139	27	20	27	26	30	184	7	177	100	127	410	1119
Univ of Kentucky	698	84	35	49	23	118	9	16	30	20	35	237	108	129	129	72	509	1207
San Jose State U, Cal	692	85	27	58	38	63	6	8	12	9	27	177	8	169	136	166	631	1323
SUNY at Stony Brook .	680	120	53	67	25	59	3	4	8	12	46	175	3	172	78	177	124	804
Southern Ill U C'dale	678	93	14	79	24	11	0	1	2	1	42	242	90	152	150	116	865	1543
U of Sthrn California	673	82	36	46	32	130	15	10	37	19	23	108	1	107	146	152	731	1404
Univ of Delaware	664	113	25	88	15	150	66	4	32	26	35	221	50	171	52	78	221	885
Univ of Virginia	660	135	69	66	28	145	15	12	39	26	40	108	8	100	102	102	404	1064
Reed College, Oregon.	645	160	90	70	12	8	0	1	2	1	90	138	3	135	149	88	181	826
Manhattan College, NY	642	194	81	113	8	200	23	31	54	20	39	106	1	105	21	74	231	873
Pomona College, Cal .	639	113	72	41	49	22	2	0	6	4	56	177	12	165	129	93	329	968
Boston College	633	201	93	108	28	15	1	0	1	2	65	87	0	87	125	112	662	1295
U of Ark, Fayettevll.	631	68	31	37	14	144	26	14	45	21	27	242	127	115	79	57	440	1071
University of Oregon.	630	90	31	59	30	12	0	1	1	2	55	133	2	131	181	129	680	1310
Geo Washington U, DC.	618	75	32	43	18	55	0	3	20	14	32	121	3	118	163	154	436	1054
Univ of New Mexico ..	606	101	36	65	38	91	8	20	23	20	45	110	5	105	118	103	517	1123
University of Miami..	605	77	27	50	30	66	0	8	18	18	38	168	13	155	57	169	577	1182
Brandeis Univ, Mass .	602	80	42	38	4	3	0	0	0	0	31	142	2	140	159	183	349	951
Carleton Coll, Minn .	602	148	80	68	54	18	2	1	3	2	50	131	8	123	127	74	354	956
Vanderbilt Univ, Tenn	602	112	46	66	19	157	41	13	45	15	41	112	6	106	68	93	308	910
U of Missouri, Rolla.	592	128	77	51	37	373	56	44	72	67	24	17	1	16	4	9	26	618
Mississippi State U .	591	66	26	40	16	171	12	18	54	32	15	231	118	113	62	30	338	929
University of Alabama	590	112	41	71	16	110	11	7	24	24	51	130	4	126	80	91	726	1316
St Louis University .	582	107	38	69	36	63	1	3	20	7	53	79	3	76	105	139	549	1131
Ohio University	577	112	37	75	24	86	14	13	33	7	21	127	16	111	89	118	630	1207
Marquette Univ, Wis .	572	97	33	64	7	148	2	15	43	25	40	99	6	93	71	110	420	992
Amherst College, Mass	569	120	70	50	61	14	3	1	1	3	31	136	4	132	140	67	429	998
Loyola U of Chicago .	558	113	33	80	5	7	0	0	0	0	19	139	5	134	61	214	441	999
Columbia-Barnard, NY.	555	48	21	27	7	1	0	0	0	0	25	120	1	119	159	195	583	1138
University of Houston	547	64	28	36	15	86	19	5	22	22	34	102	3	99	76	170	387	934
Northeastern U, Mass.	543	121	34	87	9	169	33	10	42	30	15	110	1	109	71	48	249	792
Univ of Maine, Orono.	541	82	42	40	16	82	21	8	15	8	17	248	104	144	48	48	289	830
Tulane Univ of LA ...	540	102	48	54	19	100	31	12	15	24	43	110	4	106	72	94	248	788
Arizona State Univ ..	534	78	19	59	14	60	8	4	16	8	23	140	25	115	104	115	587	1121
Cooper Union, NY	526	92	72	20	6	368	91	35	80	93	32	15	0	15	6	7	20	546
Antioch College, Ohio	526	65	35	30	26	14	0	1	2	0	32	102	6	96	130	157	263	789
Cal St U, Long Beach.	526	75	30	45	9	17	0	3	4	4	21	166	12	154	112	126	466	992
Montana State Univ ..	513	83	48	35	13	113	41	8	34	10	25	179	68	111	65	35	143	656
U of New Hampshire ..	505	87	27	60	44	62	13	12	16	11	19	198	60	138	47	46	253	758
University of Idaho..	495	53	14	39	26	94	16	14	20	14	19	219	108	111	53	31	257	752
San Francisco St Univ	493	36	7	29	8	9	0	2	2	1	14	119	3	116	146	161	604	1097
Union University, NY.	492	163	74	89	37	70	0	10	20	14	35	83	0	83	46	58	190	682
Univ of Rhode Island.	490	98	27	71	25	78	12	6	22	17	10	196	49	147	49	34	197	687
Bucknell Univ, Penn .	479	96	20	76	22	56	14	6	13	10	33	103	1	102	71	98	204	683
William & Mary, VA ..	477	110	44	66	14	13	3	1	1	0	28	115	5	110	93	104	344	821
Franklin&Marshall, PA	474	124	32	92	88	11	0	0	2	0	23	80	1	79	68	80	149	623
Kent State Univ, Ohio	473	86	17	69	26	6	0	0	1	1	21	121	7	114	98	115	622	1095
University of Hawaii.	472	57	12	45	14	33	0	9	10	6	10	168	41	127	104	86	278	750
Emory University, GA.	457	97	19	78	13	7	0	0	0	0	29	108	3	105	86	117	333	790
Sthrn Methodist U, TX	457	61	29	32	29	86	0	6	35	27	40	59	4	55	89	93	357	814
US Naval Academy, MD.	456	62	52	10	31	226	0	18	48	28	37	18	4	14	60	22	260	716
Coll of Wooster, OH..	449	136	24	112	41	6	1	0	2	2	28	101	7	94	71	66	336	785
Radcliffe College, MA	448	35	18	17	4	1	0	0	0	0	20	99	1	98	145	144	442	890
SUNY at Binghamton ..	446	82	23	59	27	4	0	0	0	0	30	75	0	75	113	115	218	664
Clemson Univ, SC	443	70	35	35	11	151	28	5	30	29	18	136	57	79	43	14	144	587
University of Wyoming	442	52	19	33	31	66	1	19	15	9	18	176	67	109	64	35	225	667
Cal State Univ, L.A..	432	42	20	22	19	18	0	3	7	3	4	84	4	80	125	140	611	1043
Williams Coll, Mass .	431	124	64	60	33	16	1	0	5	2	24	74	2	72	115	45	297	728
Wellesley Coll, Mass.	430	35	20	15	7	0	0	0	0	0	14	112	2	110	131	131	532	962
Occidental Coll, Cal.	427	95	41	54	31	15	0	0	8	2	17	74	3	71	89	106	293	720
US Military Academy .	426	53	45	8	11	207	0	57	33	34	18	6	0	6	109	22	301	727
Villanova Univ, Penn.	426	149	53	96	8	102	28	12	25	15	22	67	1	66	36	42	220	646
Baylor Univ, Texas ..	425	92	46	46	20	8	0	0	5	2	19	85	5	80	82	119	777	1202
University of Dayton.	424	80	27	53	18	101	31	3	21	14	54	78	2	76	24	69	286	710
Wesleyan Univ, Conn .	422	96	54	42	14	6	1	0	4	0	33	73	0	73	96	104	364	786
U of Cal, San Diego .	413	81	27	54	41	20	0	0	2	3	28	177	1	176	33	33	46	459
Lafayette Coll, Penn.	412	111	36	75	36	79	12	5	12	11	29	62	2	60	34	61	152	564
Grinnell Coll, Iowa .	412	102	35	67	9	8	1	0	2	1	17	94	3	91	106	76	247	659

See footnotes at end of table.

Table 11. Top 300 baccalaureate institutions of new science and engineering doctorates by major field: 1960-81 - Con.[a]

Field of study

Institution sci logy sci Psych	Total sci & eng eng	Physical sciences			Earth & env sci	Engineering					Math sci						Total[1] non-sci &	Total all
		Sub-total flds	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri	Bio-	Soc			
SUNY at Albany	409	103	29	74	17	5	0	0	1	1	27	130	2	128	66	61	500	909
Depauw Univ, Indiana.	408	82	18	64	22	10	0	1	2	0	34	83	3	80	57	120	297	705
University of Detroit	408	84	32	52	3	148	28	8	31	45	30	49	1	48	42	52	265	673
Georgetown Univ, DC .	402	65	40	25	7	6	0	0	1	0	26	68	1	67	186	44	339	741
Cal St Univ, Fresno .	400	83	24	59	17	21	0	1	10	3	20	124	31	93	72	63	347	747
Univ of Vermont	398	63	13	50	10	36	0	8	8	12	12	171	50	121	38	68	175	573
Michigan Tech Univ ..	390	72	29	43	40	210	16	24	33	42	14	47	19	28	5	2	24	414
N Texas State Univ ..	387	84	47	37	4	14	0	1	1	1	33	83	4	79	80	89	870	1257
Catholic U Amer, DC .	379	82	43	39	3	63	5	5	15	14	20	62	0	62	64	85	407	786
Hofstra Univ, NY	378	63	24	39	11	8	0	0	0	0	22	60	2	58	44	170	230	608
Western Michigan U ..	377	70	15	55	13	10	1	0	1	3	18	78	8	70	80	108	739	1116
New Mexico State U ..	377	60	40	20	4	91	6	14	28	21	21	141	69	72	33	27	121	498
St Johns Univ, NY ...	370	112	13	99	0	1	0	0	0	0	16	112	2	110	37	92	418	788
North Dakota St Univ.	366	70	10	60	3	51	0	8	14	12	8	162	76	86	53	19	123	489
St Olaf College, MN .	364	153	52	101	3	5	0	0	1	1	19	94	8	86	45	45	350	714
Worcester Poly In, MA	363	135	69	66	6	175	30	20	41	32	21	17	0	17	5	4	16	379
Wheaton College, Ill.	360	73	27	46	17	8	1	1	3	0	20	73	6	67	93	76	538	898
South Dakota State U.	359	51	30	21	2	48	0	11	10	6	5	183	93	90	61	9	140	499
Smith College, MA ...	352	21	7	14	9	1	0	0	0	0	14	96	3	93	114	97	509	861
Univ of Puerto Rico .	352	59	14	45	7	58	11	17	9	6	8	109	38	71	63	48	294	646
University of Denver.	351	51	21	30	3	42	13	5	14	5	13	65	4	61	87	90	488	839
Haverford Coll, PA ..	347	92	47	45	7	9	0	2	2	1	27	87	2	85	83	42	236	583
Stevens Inst Tech, NJ	346	145	97	48	3	124	17	4	27	34	35	14	0	14	7	18	19	365
Univ of Montana	345	39	10	29	24	4	0	1	0	0	14	141	44	97	69	54	297	642
Calvin College, MI ..	344	104	33	71	5	11	0	0	3	6	33	82	6	76	46	63	370	714
U of Illinois, C Cir.	336	62	21	41	5	46	4	3	6	13	19	101	0	101	43	60	113	449
Mt Holyoke Coll, MA .	334	55	17	38	7	2	0	0	0	0	11	112	0	112	64	83	288	622
Northern Ill Univ ...	331	73	16	57	17	8	0	0	2	0	12	87	4	83	69	65	574	905
Ohio Wesleyan Univ ..	330	60	22	38	21	14	3	1	4	2	15	89	2	87	70	61	294	624
Clarkson C Tech, NY .	327	134	35	99	3	147	46	9	28	26	14	12	0	12	9	8	33	360
Cal Polytechnic St U.	327	27	6	21	9	62	0	5	20	8	15	184	108	76	23	7	94	421
Clark University, MA.	326	58	9	49	7	3	0	0	1	0	12	61	1	60	78	107	154	480
Bowling Green St U OH	325	69	9	60	18	5	0	0	0	0	20	94	8	86	73	46	514	839
Col of Holy Cross, MA	322	98	34	64	3	10	0	0	1	3	42	56	2	54	60	53	315	637
University of S. C. .	322	62	23	39	8	65	19	7	18	15	12	55	5	50	47	73	317	639
Howard University, DC	321	57	15	42	2	38	0	9	13	11	10	97	7	90	64	53	337	658
Univ of WI, Milwaukee	320	66	24	42	21	21	0	1	3	2	23	54	5	49	74	61	251	571
Cal St U, Northridge.	320	33	17	16	14	10	0	0	2	4	7	76	4	72	67	113	251	571
Vassar College, NY ..	319	26	12	14	5	0	0	0	0	0	15	86	2	84	83	104	350	669
Colgate Univ, NY	306	52	22	30	33	7	1	0	2	0	9	70	6	64	62	73	297	603
Valparaiso Univ, IN .	303	61	22	39	10	52	0	8	18	12	20	50	1	49	67	43	194	497
Univ of Louisville ..	303	72	18	54	5	67	28	7	20	5	12	74	1	73	29	44	221	524
Univ of Cal, Irvine .	303	67	30	37	4	11	0	0	6	0	16	141	4	137	25	39	75	378
Knox College, Ill ...	299	70	19	51	13	5	0	1	0	0	29	75	1	74	60	47	163	462
Yeshiva Univ, NY	298	75	33	42	1	9	1	0	0	1	60	42	0	42	36	75	212	510
St. Josephs Univ, PA.	298	135	66	69	2	12	1	0	2	0	17	57	1	56	37	38	141	439
Bowdoin College, ME .	295	76	30	46	17	16	0	1	4	3	27	60	4	56	47	52	206	501
U of North Dakota ...	293	59	21	38	14	44	10	7	13	4	20	53	5	48	43	60	255	548
Wake Forest Univ, NC.	293	56	19	37	2	6	1	0	2	2	19	100	3	97	55	55	359	652
Earlham College, IN .	289	65	25	40	17	4	0	0	1	1	13	109	6	103	42	39	169	458
Wichita St Univ, KS .	287	67	23	44	6	48	1	0	15	17	16	25	2	23	64	61	304	591
Wabash College, IN ..	285	84	29	55	3	8	0	0	1	0	18	99	4	95	47	26	165	450
Hope College, MI	285	110	17	93	3	1	0	0	0	0	12	89	2	87	26	44	225	510
Providence Coll, RI .	281	114	25	89	2	1	0	0	0	0	12	81	2	79	43	28	237	518
U of Sou'western LA.	278	48	21	27	6	41	11	8	7	7	28	87	30	57	36	32	227	505
Cal St U, Sacramento.	276	35	7	28	5	19	0	4	5	3	13	56	3	53	80	68	261	537
Univ of South Florida	275	51	17	34	7	16	1	1	4	2	27	60	5	55	42	72	236	511
Bryn Mawr Coll, Penn.	274	40	8	32	8	3	0	0	0	0	10	75	0	75	101	37	275	549
Kalamazoo Coll, Mich.	274	97	34	63	8	9	2	0	1	0	9	81	2	79	49	21	126	400
Davidson Coll, NC ...	274	84	21	63	5	9	0	0	2	1	34	44	0	44	52	46	295	569
Denison Univ, Ohio ..	273	43	15	28	15	4	0	0	0	1	10	58	3	55	49	94	202	475
Harvey Mudd Coll, Cal	272	126	65	61	15	51	5	2	14	6	48	19	0	19	7	6	12	284
Louisiana Tech Univ .	270	52	34	18	3	76	15	4	17	20	26	73	28	45	24	16	269	539
Roosevelt Univ, Ill..	267	24	5	19	1	2	0	0	1	0	9	65	0	65	55	111	273	540
Middlebury Coll, Vt .	264	53	18	35	22	12	1	0	1	4	12	66	5	61	63	36	262	526
Beloit College, Wis .	264	43	20	23	35	3	0	0	0	1	11	61	6	55	82	29	134	398
Allegheny College, PA	263	72	16	56	23	5	2	1	0	0	11	55	0	55	35	62	181	444
Alfred University, NY	262	49	16	33	7	111	0	0	2	0	7	27	1	26	27	34	71	333
La Salle Coll, Penn .	262	91	27	64	4	5	1	0	0	0	16	56	3	53	44	46	263	525
Bradley Univ, Ill ...	262	50	6	44	4	53	0	7	16	21	12	39	0	39	43	61	182	444
Colorado Sch of Mines	262	33	15	18	86	122	31	5	1	7	8	2	0	2	10	1	9	271
Trinity College, Conn	261	65	21	44	9	10	0	1	5	1	21	39	0	39	43	74	182	443
Gettysburg Coll, Penn	259	87	38	49	2	8	0	0	1	0	9	91	8	83	13	49	218	477
Columbia Univ, NY ...	257	53	31	22	8	8	0	0	0	3	17	40	0	40	86	45	192	449
Macalester Coll, MN .	257	46	10	36	8	2	0	0	0	0	14	55	3	52	72	60	202	459
American Univ, DC ...	255	36	8	28	5	4	0	0	0	1	9	36	0	36	100	65	226	481
Xavier Univ, Ohio....	252	105	38	67	2	6	0	0	0	1	25	24	0	24	35	55	181	433
Univ of Toledo, Ohio.	250	71	24	47	7	50	6	4	11	10	14	52	2	50	22	34	238	488
Texas Christian Univ.	249	59	25	34	17	3	0	0	0	1	24	38	0	38	50	58	339	588
Portland St U, Oregon	249	47	18	29	11	5	0	0	0	0	25	53	2	51	62	46	198	447

See footnotes at end of table.

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Table 11. Top 300 baccalaureate institutions of new science and engineering doctorates by major field: 1960-81 - Con.[a]

Field of study

Institution	Total sci & eng	Physical sciences: Sub-total	Physical sciences: Phys& astr	Physical sciences: Chem-istry	Earth & env sci	Engineering: Sub-total	Engineering: Chem	Engineering: Civil	Engineering: Elec	Engineering: Mech	Math sci	Life sciences: Sub-total	Life sciences: Agri sci	Life sciences: Bio sci	Soc sci	Psych	Total[1] non-sci & eng	Total all flds
Univ of Mississippi .	248	41	10	31	2	42	13	8	10	7	23	65	3	62	43	32	291	539
New Jersey Inst Tech.	245	18	13	5	4	203	49	11	55	42	12	4	0	4	2	2	27	272
Lamar University, TX.	244	60	30	30	14	72	16	3	16	22	14	48	5	43	20	16	182	426
U of Cal, Santa Cruz.	242	36	14	22	9	1	0	0	0	0	13	80	6	74	44	59	83	325
Lawrence Univ, Wis ..	241	45	12	33	18	5	1	0	1	1	8	54	1	53	59	52	215	456
U of Santa Clara, CA.	241	53	29	24	4	46	0	4	23	9	25	33	0	33	55	25	109	350
Univ of Akron, Ohio .	240	72	16	56	4	39	1	9	9	7	16	37	3	34	34	38	206	446
Canisius College, NY.	237	117	33	84	3	6	0	0	0	0	12	40	1	39	31	28	152	389
Hamilton College, NY.	233	46	20	26	17	6	0	0	2	1	13	43	0	43	46	62	223	456
Colorado College	233	48	14	34	23	7	0	2	1	2	11	68	4	64	43	33	124	357
Memphis State U, TN .	231	54	11	43	3	9	0	1	2	0	7	70	3	67	42	46	327	558
Duquesne Univ, PA ...	230	59	12	47	2	1	0	0	0	0	12	71	3	68	28	57	341	571
Muhlenberg Coll, PA .	225	80	24	56	2	3	0	0	0	0	5	100	5	95	10	25	141	366
Depaul Univ, Ill	225	80	37	43	1	3	0	0	2	0	16	31	0	31	40	54	253	478
Adelphi Univ, NY	223	26	7	19	0	5	0	0	1	0	7	51	2	49	19	115	190	413
John Carroll U, Ohio.	223	99	48	51	3	8	1	0	0	1	14	30	1	29	23	46	187	410
Augustana Coll, Ill .	221	58	6	52	34	2	1	0	1	0	12	39	1	38	41	35	189	410
St Lawrence Univ, NY.	220	47	14	33	30	7	0	0	1	1	9	54	5	49	31	42	145	365
Univ of Richmond, VA.	218	62	27	35	6	2	0	0	0	0	10	55	2	53	40	43	225	443
Humboldt State U, CA.	218	19	8	11	10	4	0	2	0	0	7	130	40	90	19	29	68	286
Seton Hall Univ, NJ .	217	68	6	62	1	1	1	0	0	0	12	46	2	44	19	70	321	538
U of Missouri, Ks Cit	216	41	11	30	9	2	0	0	0	0	20	48	3	45	42	54	215	431
Berea College, KY ...	216	56	28	28	5	4	0	0	1	2	9	84	42	42	43	15	174	390
Univ of Redlands, CA.	211	32	9	23	13	8	0	0	3	2	10	42	1	41	45	61	254	465
St Peters Coll, NJ ..	210	76	12	64	2	2	0	0	1	0	23	45	1	44	29	33	143	353
Illinois St U, Normal	210	19	5	14	6	4	1	0	0	0	17	54	13	41	85	25	590	800
U of San Francisco ..	210	55	21	34	1	5	0	0	1	1	14	49	2	47	32	54	152	362
Western Washington U.	207	43	8	35	12	4	0	0	2	0	16	49	0	49	39	44	243	450
U of Tex, Arlington .	206	39	20	19	8	48	0	4	20	7	23	41	5	36	24	23	80	286
Western Illinois U ..	203	37	11	26	2	3	0	0	1	0	7	83	28	55	40	31	271	474
Bates College, Maine.	202	58	16	42	13	1	0	0	1	0	7	65	2	63	33	25	158	360
Whitman College, WA .	201	43	23	20	6	7	1	0	1	1	17	52	3	49	41	35	111	312
Univ of Lowell, Mass.	198	105	41	64	6	65	9	2	11	22	5	12	1	11	5	0	63	261
Cal St Univ, Chico ..	198	25	7	18	10	18	0	4	9	2	7	63	13	50	42	33	163	361
St Johns Univ, Minn.	197	70	32	38	2	3	0	0	0	0	22	45	3	42	31	24	141	338
Juniata College, PA .	194	65	4	61	13	2	0	0	1	0	4	81	1	80	11	18	102	296
Concordia-Morhead, MN	194	32	18	14	2	5	1	0	1	2	26	65	2	63	25	39	175	369
Col of St Thomas, MN.	194	80	12	68	2	6	1	0	1	1	16	52	1	51	21	17	120	314
Fairleigh Dickn U, NJ	193	60	16	44	1	20	0	0	6	2	11	58	1	57	12	31	106	299
Albion College, Mich.	192	44	12	32	4	6	0	0	0	0	7	77	3	74	24	30	155	347
University of Tulsa .	192	27	12	15	26	52	20	1	1	11	11	31	2	29	18	27	198	390
Cal St U, Fullerton .	192	20	5	15	2	2	0	1	0	1	4	49	2	47	54	61	107	299
Drew University, NJ .	191	44	11	33	2	1	0	0	0	0	7	66	4	62	35	36	92	283
SUNY Envr Sci Frstry.	190	34	0	34	7	8	0	0	0	1	0	132	59	73	8	1	14	204
U of Scranton, Penn..	190	64	29	35	4	4	0	0	2	0	0	66	0	66	14	38	126	316
University of Nevada.	189	41	17	24	15	22	2	3	5	4	13	53	12	41	22	23	121	310
Wittenberg Univ, Ohio	188	46	12	34	12	0	0	0	0	0	7	47	1	46	39	37	199	387
Western Kentucky Univ	188	44	15	29	0	4	0	0	0	0	10	77	38	39	32	21	240	428
Gonzaga Univ, Wash ..	187	28	13	15	4	31	13	4	5	4	12	29	1	28	33	50	192	379
USAF Academy, Col ...	186	24	20	4	1	87	0	5	8	16	14	9	0	9	36	15	64	250
S Dakota S Mines&Tech.	185	44	17	27	22	89	9	6	25	14	23	7	1	6	0	0	5	190
Kenyon College, Ohio.	184	46	13	33	3	0	0	0	0	0	25	46	2	44	34	30	134	318
Eastern Illinois Univ	184	44	22	22	5	3	0	0	1	0	10	90	25	65	22	10	306	490
Emporia St Univ, KS .	184	47	12	35	4	3	0	0	0	0	15	71	2	69	28	16	406	590
Tennessee Tech Univ .	180	19	6	13	1	58	5	8	8	16	10	71	35	36	14	7	123	303
Cleveland St Univ, OH	179	33	15	18	2	61	12	3	16	13	7	31	1	30	18	27	72	251
St Marys College, MN.	178	69	28	41	1	4	0	0	3	0	14	45	1	44	25	20	146	324
U of Southern Miss ..	177	42	4	38	7	3	0	0	1	0	13	44	3	41	27	41	423	600
Pittsburg State U, KS	176	47	12	35	0	2	0	0	0	2	13	57	4	53	30	27	352	528
Dickenson College, PA	172	34	15	19	14	2	0	0	0	0	11	48	1	47	24	39	175	347
Murray State Univ, KY	172	64	25	39	3	6	1	0	1	0	11	60	29	31	11	17	286	458

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[a] The top 300 institutions are ranked according to S/E baccalaureate production (column 2). For all three panels (total, men, women) institutions are listed in the order of ranking for total S/E baccalaureate production. Institutional rankings for men and women may differ.

SOURCES: National Science Foundation and National Research Council

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Table 12. New science and engineering doctorates with definite postgraduation employment or study commitments in the United States by major field and citizenship status: for selected years[a]

Postgraduation plans	Total sci & eng	Physical sciences: Subtotal	Physical sciences: Phys& astr	Physical sciences: Chemistry	Earth & env sci	Engineering: Subtotal	Engineering: Chem	Engineering: Civil	Engineering: Elec	Engineering: Mech	Math sci	Life sciences: Subtotal	Life sciences: Agri sci	Life sciences: Biology	Soc sci	Psych	Total[1] non-sci & eng	Total all flds
Year of doctorate - 1970																		
Total	11789	2615	1019	1596	345	2178	300	173	536	412	820	2724	424	2300	1798	1309	8074	19863
US citizens	10594	2329	894	1435	305	1860	249	130	454	367	744	2468	386	2082	1622	1266	7788	18382
Employment	8278	1511	573	938	250	1773	241	127	433	353	702	1393	347	1046	1558	1091	7625	15903
Study	2299	817	321	496	55	84	8	3	20	13	41	1067	38	1029	61	174	125	2424
Other, no report	17	1	0	1	0	3	0	0	1	1	1	8	1	7	3	1	38	55
Non-US citizens, ttl	1180	281	124	157	39	317	51	43	81	45	75	254	38	216	174	40	276	1456
Employment	707	102	49	53	20	258	42	34	71	43	64	73	14	59	162	28	247	954
Study	469	177	75	102	19	58	9	8	10	2	11	181	24	157	11	12	25	494
Other, no report	4	2	0	2	0	1	0	1	0	0	0	0	0	0	1	0	4	8
Permanent residents	604	125	46	79	19	186	34	21	46	32	31	113	14	99	106	24	186	790
Employment	428	60	24	36	14	162	29	19	41	31	29	46	10	36	101	16	173	601
Study	174	64	22	42	5	23	5	1	5	1	2	67	4	63	5	8	12	186
Other, no report	2	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	3
Temporary residents	576	156	78	78	20	131	17	22	35	13	44	141	24	117	68	16	90	666
Employment	279	42	25	17	6	96	13	15	30	12	35	27	4	23	61	12	74	353
Study	295	113	53	60	14	35	4	7	5	1	9	114	20	94	6	4	13	309
Other, no report	2	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	3	5
Unknown citizenship.	15	5	1	4	1	1	0	0	1	0	1	2	0	2	2	3	10	25
Year of doctorate - 1972																		
Total	11687	2156	926	1230	391	2039	215	199	473	365	772	2648	377	2271	2173	1508	9373	21060
US citizens	10525	1900	813	1087	357	1687	180	143	402	300	696	2427	344	2083	1995	1463	9016	19541
Employment	7921	969	463	506	283	1571	168	138	372	281	658	1272	306	966	1916	1252	8738	16659
Study	2533	921	344	577	70	108	12	5	29	19	36	1142	35	1107	58	198	166	2699
Other, no report	71	10	6	4	4	8	0	0	1	0	2	13	3	10	21	13	112	183
Non-US citizens, ttl	1158	255	412	143	34	351	35	56	70	65	76	221	33	188	177	44	343	1501
Employment	612	55	27	28	23	222	19	42	49	43	57	53	15	38	165	37	312	924
Study	539	199	84	115	11	127	16	13	21	22	19	165	17	148	11	7	29	568
Other, no report	7	1	1	0	0	2	0	1	0	0	0	3	1	2	1	0	2	9
Permanent residents	750	150	48	102	24	258	28	39	54	55	34	138	20	118	115	31	259	1009
Employment	458	45	20	25	17	184	19	31	42	39	31	43	12	31	112	26	241	699
Study	288	105	28	77	7	72	9	7	12	16	3	94	7	87	2	5	16	304
Other, no report	4	0	0	0	0	2	0	1	0	0	0	1	1	0	1	0	2	6
Temporary residents	408	105	64	41	10	93	7	17	16	10	42	83	13	70	62	13	84	492
Employment	154	10	7	3	6	38	0	11	7	4	26	10	3	7	53	11	71	225
Study	251	94	56	38	4	55	7	6	9	6	16	71	10	61	9	2	13	264
Other, no report	3	1	1	0	0	0	0	0	0	0	0	2	0	2	0	0	0	3
Unknown citizenship.	4	1	1	0	0	1	0	0	1	0	0	0	0	0	1	1	14	18
Year of doctorate - 1974																		
Total	10636	1830	704	1126	367	1758	224	159	387	309	621	2455	362	2093	1976	1629	9016	19652
US citizens	9294	1571	591	980	321	1286	147	98	288	226	544	2193	320	1873	1802	1577	8681	17975
Employment	7144	887	321	566	271	1211	140	93	268	218	514	1169	282	887	1735	1357	8406	15550
Study	2130	683	270	413	49	74	7	5	19	8	29	1020	36	984	58	217	200	2330
Other, no report	20	1	0	1	1	1	0	0	1	0	1	4	2	2	9	3	75	95
Non-US Citizens, ttl	1324	258	113	145	44	470	77	61	98	83	77	258	41	217	167	50	316	1640
Employment	757	51	19	32	23	370	65	56	80	63	62	65	19	46	148	38	285	1042
Study	562	207	94	113	21	98	11	5	18	19	15	192	22	170	17	12	23	585
Other, no report	5	0	0	0	0	2	1	0	0	1	0	1	0	1	2	0	8	13
Permanent residents	702	120	45	75	28	276	48	32	60	53	27	137	19	118	91	23	222	924
Employment	465	41	15	26	17	241	43	31	50	48	23	43	12	31	82	18	202	667
Study	233	79	30	49	11	33	4	1	10	4	4	93	7	86	8	5	13	246
Other, no report	4	0	0	0	0	2	1	0	0	1	0	1	0	1	1	0	7	11
Temporary residents	622	138	68	70	16	194	29	29	38	30	50	121	22	99	76	27	94	716
Employment	292	10	4	6	6	129	22	25	30	15	39	22	7	15	66	20	83	375
Study	329	128	64	64	10	65	7	4	8	15	11	99	15	84	9	7	10	339
Other, no report	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Unknown citizenship.	18	1	0	1	2	2	0	0	1	0	0	4	1	3	7	2	19	37

See footnotes at end of table.

Table 12. New science and engineering doctorates with definite postgraduation employment or study commitments in the United States by major field and citizenship status: for selected years - Con. [a]

Field of study

Postgraduation plans	Total sci & eng	Physical sciences			Earth & env sci	Engineering					Math sci	Life sciences			Soc sci	Psych	Total[1] non-sci & eng	Total all flds
		Sub-total	Phys& astr	Chem-istry		Sub-total	Chem	Civil	Elec	Mech		Sub-total	Agri sci	Bio-logy				
Year of doctorate - 1976																		
Total	10695	1737	653	1084	399	1617	205	143	331	227	570	2692	364	2328	1892	1788	9131	19826
US citizens	9472	1481	552	929	359	1175	131	91	240	175	505	2463	340	2123	1745	1744	8798	18270
Employment	6674	718	266	452	266	1050	121	84	214	170	469	1054	285	769	1656	1461	8500	15174
Study	2737	758	284	474	88	121	10	7	26	5	34	1389	52	1337	76	271	187	2924
Other, no report	61	5	2	3	5	4	0	0	0	0	2	20	3	17	13	12	111	172
Non-US Citizens, ttl	1210	255	101	154	40	441	74	52	91	52	64	227	23	204	144	39	295	1505
Employment	660	59	21	38	19	323	53	45	65	39	53	47	12	35	134	25	263	923
Study	541	195	79	116	21	114	18	7	26	12	10	178	10	168	9	14	30	571
Other, no report	9	1	1	0	0	4	3	0	0	1	1	2	1	1	1	0	2	11
Permanent residents	577	112	31	81	18	207	36	30	41	28	25	115	10	105	79	21	194	771
Employment	378	45	14	31	9	177	29	28	36	25	23	30	6	24	78	16	176	554
Study	196	67	17	50	9	28	5	2	5	3	1	85	4	81	1	5	16	212
Other, no report	3	0	0	0	0	2	2	0	0	0	1	0	0	0	0	0	2	5
Temporary residents	633	143	70	73	22	234	38	22	50	24	39	112	13	99	65	18	101	734
Employment	282	14	7	7	10	146	24	17	29	14	30	17	6	11	56	9	87	369
Study	345	128	62	66	12	86	13	5	21	9	9	93	6	87	8	9	14	359
Other, no report	6	1	1	0	0	2	1	0	0	1	0	2	1	1	1	0	0	6
Unknown citizenship.	13	1	0	1	0	1	0	0	0	0	1	2	1	1	3	5	38	51
Year of doctorate - 1978																		
Total	10225	1687	664	1023	400	1440	175	107	264	219	585	2678	414	2264	1665	1770	8010	18235
US citizens	8980	1417	553	864	373	980	114	67	178	137	494	2469	374	2095	1522	1725	7718	16698
Employment	6091	747	271	476	268	884	105	65	161	125	449	964	334	630	1398	1381	7450	13541
Study	2854	667	282	385	104	92	9	1	17	12	45	1500	40	1460	110	336	210	3064
Other, no report	35	3	0	3	1	4	0	1	0	0	0	5	0	5	14	8	58	93
Non-US Citizens, ttl	1231	268	111	157	27	457	61	40	86	81	90	207	40	167	141	41	284	1515
Employment	697	80	33	47	16	324	47	30	71	56	68	44	19	25	131	34	258	955
Study	529	188	78	110	10	131	14	10	15	25	22	163	21	142	8	7	22	551
Other, no report	5	0	0	0	1	2	0	0	0	0	0	0	0	0	2	0	4	9
Permanent residents	522	96	32	64	12	203	31	16	37	38	27	90	23	67	63	31	163	685
Employment	375	43	17	26	9	178	30	14	34	35	23	34	15	19	60	28	153	528
Study	143	53	15	38	2	23	1	2	3	3	4	56	8	48	2	3	7	150
Other, no report	4	0	0	0	1	2	0	0	0	0	0	0	0	0	1	0	3	7
Temporary residents	709	172	79	93	15	254	30	24	49	43	63	117	17	100	78	10	121	830
Employment	322	37	16	21	7	146	17	16	37	21	45	10	4	6	71	6	105	427
Study	386	135	63	72	8	108	13	8	12	22	18	107	13	94	6	4	15	401
Other, no report	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Unknown citizenship.	14	2	0	2	0	3	0	0	0	1	1	2	0	2	2	4	8	22
Year of doctorate - 1980																		
Total	10737	1713	632	1081	425	1520	193	116	312	232	621	2937	421	2516	1603	1918	8181	18918
US citizens	9376	1437	522	915	385	974	106	72	202	143	512	2725	388	2337	1475	1868	7914	17290
Employment	6347	840	267	573	275	908	101	70	189	135	465	973	323	650	1372	1514	7660	14007
Study	3007	595	255	340	110	64	5	2	13	7	46	1744	63	1681	100	348	223	3230
Other, no report	22	2	0	2	0	2	0	0	0	1	1	5	2	6	3	6	31	53
Non-US citizens, ttl	1357	274	109	165	40	545	87	43	110	89	109	212	33	179	128	49	261	1618
Employment	795	85	31	54	16	417	70	32	88	67	88	44	19	25	109	36	224	1019
Study	555	188	77	111	24	126	17	11	21	22	20	166	14	152	18	13	36	591
Other, no report	7	1	1	0	0	2	0	0	1	0	1	2	0	2	1	0	1	8
Permanent residents	546	94	33	61	18	198	32	15	38	37	44	98	15	83	64	30	165	711
Employment	396	53	19	34	8	187	30	13	36	34	39	27	10	17	58	24	152	548
Study	150	41	14	27	10	11	2	2	2	3	5	71	5	66	6	6	12	162
Other, no report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Temporary residents	811	180	76	104	22	347	55	28	72	52	65	114	18	96	64	19	96	907
Employment	399	32	12	20	8	230	40	19	52	33	49	17	9	8	51	12	72	471
Study	405	147	63	84	14	115	15	9	19	19	15	95	9	86	12	7	24	429
Other, no report	7	1	1	0	0	2	0	0	1	0	1	2	0	2	1	0	0	7
Unknown citizenship.	4	2	1	1	0	1	0	1	0	0	0	0	0	0	0	1	6	10

See footnotes at end of table.

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Table 12. New science and engineering doctorates with definite postgraduation employment or study commitments in the United States by major field and citizenship status: for selected years - Con.[a]

Field of study

Postgraduation plans	Total sci & eng	Physical sciences: Sub-total	Physical sciences: Phys& astr	Physical sciences: Chem-istry	Earth & env sci	Engineering: Sub-total	Engineering: Chem	Engineering: Civil	Engineering: Elec	Engineering: Mech	Math sci	Life sciences: Sub-total	Life sciences: Agri sci	Life sciences: Bio-logy	Soc sci	Psych	Total[1] non-sci & eng	Total all flds
Year of doctorate - 1981																		
Total	10750	1760	632	1128	387	1454	183	136	294	203	606	2892	421	2471	1573	2078	7982	18732
US citizens	9355	1474	502	972	351	897	100	78	186	116	489	2708	390	2318	1403	2033	7687	17042
Employment	6359	920	278	642	259	834	98	74	172	113	444	960	336	624	1292	1650	7465	13824
Study	2974	549	221	328	92	61	2	4	13	3	45	1739	53	1686	105	383	206	3180
Other, no report	22	5	3	2	0	2	0	0	1	0	0	9	1	8	6	0	16	38
Non-US Citizens, ttl	1382	282	130	152	35	555	82	58	108	87	116	181	31	150	170	43	286	1668
Employment	887	96	44	52	19	452	68	51	90	72	93	54	20	34	151	22	261	1148
Study	486	184	86	98	16	100	13	7	18	15	22	125	11	114	18	21	23	509
Other, no report	9	2	0	2	0	3	1	0	0	0	1	2	0	2	1	0	2	11
Permanent residents	490	87	28	59	8	193	35	18	34	25	40	74	8	66	66	22	188	678
Employment	372	49	12	37	5	178	32	17	34	21	34	28	6	22	64	14	181	553
Study	115	37	16	21	3	13	2	1	0	4	6	46	2	44	2	8	7	122
Other, no report	3	1	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	3
Temporary residents	892	195	102	93	27	362	47	40	74	62	76	107	23	84	104	21	98	990
Employment	515	47	32	15	14	274	36	34	56	51	59	26	14	12	87	8	80	595
Study	371	147	70	77	13	87	11	6	18	11	16	79	9	70	16	13	16	387
Other, no report	6	1	0	1	0	1	0	0	0	0	1	2	0	2	1	0	2	8
Unknown citizenship.	13	4	0	4	1	2	1	0	0	0	1	3	0	3	0	2	9	22

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[a] Only doctorates with definite postdoctoral study or employment commitments in the United States are reported here. A "definite commitment" is defined as having a signed contract, formal offer, etc.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81[a]

Total, male and female

Employment sector	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
						Year of doctorate							
Total, science & engineering													
College/university .	2015	2121	2280	2519	2924	3354	3609	4291	4885	4827	32825	5109	5444
Elem/sec school	40	70	50	30	28	21	20	43	43	32	377	43	79
Government	425	420	496	476	509	544	567	786	911	951	6085	1003	1227
Nonprofit org	162	169	218	243	236	286	284	279	321	334	2532	402	311
Business/industry ..	1086	1121	1086	1211	1276	1407	1595	1891	2113	2270	15056	2390	1876
Self-employed	26	30	19	22	10	22	22	14	17	31	213	45	46
Other & unknown	87	94	105	143	153	141	177	162	151	54	1272	38	39
Total	3841	4025	4254	4644	5141	5775	6274	7466	8441	8499	58360	9030	9022
Physical sciences													
College/university .	329	347	361	394	433	521	529	579	710	523	4726	573	523
Elem/sec school	4	4	6	0	1	0	1	3	4	1	24	5	11
Government	57	60	82	64	76	90	71	143	176	164	983	174	158
Nonprofit org	25	34	43	54	32	41	38	29	39	47	382	63	43
Business/industry ..	583	580	471	508	509	515	577	732	771	797	6043	798	588
Self-employed	1	1	0	2	1	2	0	2	0	3	12	3	4
Other & unknown	20	19	21	43	37	43	45	45	34	6	313	5	2
Total	1019	1045	984	1065	1089	1212	1261	1533	1734	1541	12483	1621	1329
Earth, env., & marine sciences													
College/university .	78	69	61	79	95	111	103	150	148	143	1037	150	163
Elem/sec school	0	0	1	0	0	0	0	0	1	1	3	0	0
Government	26	28	41	42	29	43	43	50	49	48	399	37	66
Nonprofit org	6	5	8	5	6	5	6	8	4	7	60	9	6
Business/industry ..	42	44	38	60	51	67	61	50	75	67	555	75	68
Self-employed	1	1	2	1	0	0	2	0	1	4	12	0	4
Other & unknown	1	4	3	4	3	5	4	6	4	0	34	0	1
Total	154	151	154	191	184	231	219	264	282	270	2100	271	308
Engineering													
College/university .	240	308	339	375	441	570	582	683	692	646	4866	585	596
Elem/sec school	1	2	0	0	0	0	0	0	1	0	4	0	1
Government	25	24	25	35	46	64	83	130	207	236	875	242	346
Nonprofit org	15	24	34	42	56	65	70	64	81	89	540	100	50
Business/industry ..	274	297	383	412	473	592	711	818	926	1057	5943	1103	897
Self-employed	0	5	2	2	0	0	5	3	4	11	32	13	7
Other & unknown	18	28	30	39	50	45	63	43	45	11	372	4	10
Total	573	688	813	905	1066	1336	1514	1741	1946	2050	12632	2047	1907
Mathematical sciences													
College/university .	134	158	175	235	298	353	409	452	534	577	3325	617	639
Elem/sec school	1	0	1	1	0	0	1	0	1	1	6	0	0
Government	18	5	14	8	13	9	13	25	24	28	157	30	29
Nonprofit org	1	10	7	10	14	14	11	16	7	11	101	22	7
Business/industry ..	29	41	39	47	47	52	49	63	83	63	513	99	68
Self-employed	0	1	1	0	0	0	1	0	0	1	4	0	1
Other & unknown	4	4	3	4	5	4	2	6	6	0	38	0	2
Total	187	219	240	305	377	432	486	562	655	681	4144	768	746

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Total, male and female

	Year of doctorate												
Employment sector	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, science & engineering													
College/university .	5029	4780	4214	4177	3879	3627	3301	3299	42859	3135	3089	6224	81908
Elem/sec school	95	109	87	99	112	99	86	67	876	112	119	231	1484
Government	1434	1346	1224	1338	1253	1216	1023	1105	12169	1123	1104	2227	20481
Nonprofit org	341	441	446	430	418	426	474	486	4173	523	496	1019	7724
Business/industry ..	1540	1774	1832	1873	1578	1607	1792	2012	18274	2128	2279	4407	37737
Self-employed	57	58	72	67	73	85	93	102	698	100	137	237	1148
Other & unknown	47	56	41	32	33	29	25	33	373	23	31	54	1699
Total	8543	8564	7914	8016	7346	7089	6794	7104	79422	7144	7255	14399	152181
Physical sciences													
College/university .	445	337	267	214	224	219	181	167	3150	144	129	273	8149
Elem/sec school	21	15	11	6	13	7	5	3	97	6	4	10	131
Government	234	205	174	145	124	136	108	132	1590	110	112	222	2795
Nonprofit org	28	23	23	20	19	14	17	17	267	13	15	28	677
Business/industry ..	300	407	461	515	395	431	514	603	5012	651	755	1406	12461
Self-employed	0	6	2	6	2	5	3	5	36	2	3	5	53
Other & unknown	0	3	0	0	1	1	0	3	15	0	0	0	328
Total	1028	996	938	906	778	813	828	930	10167	926	1018	1944	24594
Earth, env., & marine sciences													
College/university .	162	158	131	103	112	115	96	106	1296	101	89	190	2523
Elem/sec school	1	1	2	2	0	1	1	1	9	0	1	1	13
Government	66	79	77	96	79	94	78	61	733	74	69	143	1275
Nonprofit org	5	6	9	9	5	7	7	10	73	6	0	6	139
Business/industry ..	69	61	71	113	87	89	100	119	852	110	117	227	1634
Self-employed	3	0	4	1	2	1	2	2	19	0	3	3	34
Other & unknown	0	0	1	0	0	2	0	1	5	0	0	0	39
Total	306	305	295	324	285	309	284	300	2987	291	279	570	5657
Engineering													
College/university .	485	441	334	389	371	358	309	352	4220	352	361	713	9799
Elem/sec school	0	2	0	0	1	0	0	0	4	0	0	0	8
Government	391	325	277	304	256	264	190	193	2788	207	154	361	4024
Nonprofit org	47	68	68	41	34	35	22	35	500	28	26	54	1094
Business/industry ..	849	898	889	819	697	674	670	734	8230	729	739	1468	15641
Self-employed	18	7	10	6	11	10	12	9	103	10	6	16	151
Other & unknown	5	1	4	1	3	1	6	1	36	0	2	2	410
Total	1795	1742	1582	1560	1373	1342	1209	1324	15881	1326	1288	2614	31127
Mathematical sciences													
College/university .	563	493	444	436	407	348	362	362	4671	366	351	717	8713
Elem/sec school	5	1	5	6	1	2	3	2	25	4	1	5	36
Government	54	48	37	50	47	40	37	46	418	33	33	66	641
Nonprofit org	8	9	7	8	2	5	7	7	82	8	4	12	195
Business/industry ..	83	82	80	85	64	86	107	125	879	140	147	287	1679
Self-employed	0	2	3	2	1	3	2	2	16	2	2	4	24
Other & unknown	2	0	0	0	1	0	0	2	7	0	0	0	45
Total	715	635	576	587	523	484	518	546	6098	553	538	1091	11333

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Total, male and female

Employment sector	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
	Year of doctorate												
Life sciences													
College/university .	538	505	533	601	659	681	757	864	1021	1034	7193	1005	1032
Elem/sec school	4	9	6	4	1	0	1	4	1	2	32	5	5
Government	124	117	143	133	133	152	166	211	215	175	1569	203	225
Nonprofit org	41	27	33	29	23	53	46	46	61	28	387	49	38
Business/industry ..	95	104	100	112	118	117	130	147	167	180	1270	198	161
Self-employed	4	3	3	1	3	3	1	2	0	1	21	9	4
Other & unknown	13	16	18	24	27	25	26	30	27	10	216	4	2
Total	819	781	836	904	964	1031	1127	1334	1492	1430	10688	1473	1467
Social sciences													
College/university .	465	497	546	557	661	779	805	1057	1203	1253	7823	1494	1715
Elem/sec school	6	10	9	4	2	2	1	0	0	1	35	3	4
Government	51	57	49	67	60	71	74	75	80	87	671	104	155
Nonprofit org	32	19	37	33	35	35	39	34	50	49	363	53	56
Business/industry ..	25	21	25	28	33	37	32	40	42	58	341	56	52
Self-employed	5	3	5	3	3	3	4	2	2	3	33	5	3
Other & unknown	15	8	11	7	10	11	18	13	13	9	115	14	12
Total	599	615	682	699	804	938	973	1221	1390	1460	9381	1729	2002
Psychology													
College/university .	231	237	265	278	337	339	424	506	587	651	3855	685	776
Elem/sec school	24	45	27	21	24	19	16	36	35	26	273	30	58
Government	124	129	142	127	152	115	117	152	160	213	1431	213	248
Nonprofit org	42	50	56	70	70	73	74	82	79	103	699	106	111
Business/industry ..	38	34	30	44	45	27	35	41	49	48	391	61	42
Self-employed	15	16	6	13	3	14	9	5	10	8	99	15	18
Other & unknown	16	15	19	22	26	8	19	19	22	18	184	11	10
Total	490	526	545	575	657	595	694	841	942	1067	6932	1121	1263
Total, non-science & engineering[1]													
College/university .	1851	2075	2206	2455	2828	3303	3777	4459	5144	5491	33591	6426	6862
Elem/sec school	338	378	443	431	490	601	586	665	720	617	5269	703	893
Government	91	91	105	113	137	138	145	174	183	297	1477	370	305
Nonprofit org	89	85	108	132	136	129	146	200	186	155	1366	194	277
Business/industry ..	48	35	50	53	50	52	98	91	106	91	667	115	141
Self-employed	14	14	10	13	13	19	11	15	13	14	136	35	32
Other & unknown	27	21	25	20	36	30	29	38	29	49	304	56	27
Total	2458	2702	2950	3217	3690	4274	4792	5632	6381	6714	42810	7901	8737
Total, all fields													
College/university .	3866	4195	4486	4974	5752	6659	7386	8750	10029	10318	66416	11537	12306
Elem/sec school	378	448	493	461	518	622	606	708	763	649	5646	746	972
Government	516	511	604	589	646	682	712	960	1094	1248	7562	1373	1732
Nonprofit org	251	254	326	375	372	415	430	479	507	489	3898	596	588
Business/industry ..	1134	1159	1136	1264	1326	1459	1693	1972	2219	2361	15723	2505	2017
Self-employed	40	44	29	35	23	41	33	29	39	45	349	80	78
Other & unknown	114	115	130	163	194	171	206	200	180	103	1576	94	66
Total	6299	6727	7204	7861	8831	10049	11066	13098	14822	15213	101170	16931	17759

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Total, male and female

Employment sector	Year of doctorate 1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Life sciences													
College/university .	881	901	770	707	658	596	590	606	7746	562	549	1111	16050
Elem/sec school	12	11	10	8	5	7	3	4	70	2	7	9	111
Government	213	213	186	193	191	150	160	144	1878	166	151	317	3764
Nonprofit org	65	62	57	58	52	33	38	49	501	44	39	83	971
Business/industry ..	143	195	198	203	187	179	205	202	1871	234	248	482	3623
Self-employed	6	16	13	10	8	10	12	7	95	8	18	26	142
Other & unknown	6	4	2	2	2	1	0	4	27	1	2	3	246
Total	1326	1402	1236	1181	1103	976	1008	1016	12188	1017	1014	2031	24907
Social sciences													
College/university .	1764	1697	1544	1576	1428	1345	1187	1090	14840	1042	1000	2042	24705
Elem/sec school	7	6	3	10	4	4	4	5	50	6	7	13	98
Government	151	163	173	205	197	170	159	170	1647	201	207	408	2726
Nonprofit org	58	85	69	64	59	59	67	76	646	92	83	175	1184
Business/industry ..	60	67	68	81	76	77	91	99	727	111	111	222	1290
Self-employed	12	6	8	10	7	13	11	14	94	13	13	26	153
Other & unknown	30	29	25	17	22	21	12	16	198	16	23	39	352
Total	2082	2053	1890	1963	1793	1689	1531	1470	18202	1481	1444	2925	30508
Psychology													
College/university .	729	753	724	752	679	646	576	616	6936	568	610	1178	11969
Elem/sec school	49	73	56	67	88	78	70	52	621	94	99	193	1087
Government	325	313	300	345	359	362	291	359	3115	332	378	710	5256
Nonprofit org	130	188	211	230	247	273	316	292	2104	332	329	661	3464
Business/industry ..	36	64	65	57	72	71	105	130	703	153	162	315	1409
Self-employed	18	21	32	32	42	43	51	63	335	65	92	157	591
Other & unknown	4	19	9	12	4	3	7	6	85	6	4	10	279
Total	1291	1431	1397	1495	1491	1476	1416	1518	13899	1550	1674	3224	24055
Total, non-science & engineering[1]													
College/university .	6890	6847	6201	5958	5882	5270	4959	4834	60131	4774	4616	9390	103112
Elem/sec school	1159	1244	1174	1295	1408	1249	1182	1168	11475	1367	1351	2718	19462
Government	523	628	701	739	744	732	738	768	6448	741	764	1505	9430
Nonprofit org	316	371	366	460	483	478	494	495	3934	547	505	1052	6352
Business/industry ..	115	156	200	207	184	207	240	282	1847	326	331	657	3171
Self-employed	36	36	43	63	74	87	87	96	589	119	146	265	990
Other & unknown	25	36	26	30	26	17	16	23	282	16	21	37	623
Total	9064	9318	8711	8752	8801	8040	7716	7666	84706	7890	7734	15624	143140
Field of study - Total, all fields													
College/university .	11919	11627	10415	10135	9761	8897	8260	8133	102990	7909	7705	15614	185020
Elem/sec school	1254	1353	1261	1394	1520	1348	1268	1235	12351	1479	1470	2949	20946
Government	1957	1974	1925	2077	1997	1948	1761	1873	18617	1864	1868	3732	29911
Nonprofit org	657	812	810	890	901	904	968	981	8107	1070	1001	2071	14076
Business/industry ..	1655	1930	2032	2080	1762	1814	2032	2294	20121	2454	2610	5064	40908
Self-employed	93	94	115	130	147	172	180	198	1287	219	283	502	2138
Other & unknown	72	92	67	62	59	46	41	56	655	39	52	91	2322
Total	17607	17882	16625	16768	16147	15129	14510	14770	164128	15034	14989	30023	295321

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con. [a]

Male

	Year of doctorate												
Employment sector	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Total, science & engineering													
College/university .	1861	1967	2114	2331	2688	3112	3346	3921	4453	4369	30162	4649	4871
Elem/sec school	32	60	42	21	22	17	15	26	29	25	289	34	61
Government	399	396	466	437	470	512	527	743	850	892	5692	939	1148
Nonprofit org	148	155	199	223	204	248	246	242	277	287	2229	360	268
Business/industry ..	1072	1102	1074	1193	1262	1386	1571	1867	2083	2250	14860	2360	1852
Self-employed	24	24	14	19	6	16	20	11	13	27	174	36	42
Other & unknown	83	89	103	138	153	141	172	159	150	47	1235	28	35
Total	3619	3793	4012	4362	4805	5432	5897	6969	7855	7897	54641	8406	8277
Physical sciences													
College/university .	312	334	346	377	413	487	504	542	672	485	4472	533	492
Elem/sec school	4	4	6	0	1	0	1	2	4	1	23	5	10
Government	56	59	80	60	74	88	70	141	170	162	960	169	155
Nonprofit org	25	34	43	54	31	40	37	27	35	45	371	60	43
Business/industry ..	573	566	465	500	501	505	567	716	758	786	5937	786	582
Self-employed	1	1	0	2	1	2	0	1	0	3	11	3	4
Other & unknown	20	19	21	43	37	43	45	45	33	5	311	4	2
Total	991	1017	961	1036	1058	1165	1224	1474	1672	1487	12085	1560	1288
Earth, env., & marine sciences													
College/university .	78	68	60	78	93	110	99	148	145	137	1016	144	159
Elem/sec school	0	0	0	0	0	0	0	0	1	1	2	0	0
Government	26	28	41	42	29	43	42	48	48	45	392	36	63
Nonprofit org	6	5	8	5	6	5	6	8	4	7	60	7	6
Business/industry ..	42	44	38	60	51	67	61	50	75	66	554	75	68
Self-employed	1	1	2	1	0	0	2	0	1	4	12	0	4
Other & unknown	1	4	3	4	3	5	4	6	4	0	34	0	1
Total	154	150	152	190	182	230	214	260	278	260	2070	262	301
Engineering													
College/university .	239	304	338	375	441	567	581	683	680	643	4851	582	596
Elem/sec school	1	2	0	0	0	0	0	0	1	0	4	0	1
Government	25	24	25	34	45	64	83	130	206	236	872	241	346
Nonprofit org	15	24	34	42	55	65	70	63	81	89	538	100	50
Business/industry ..	273	297	383	409	472	592	707	817	922	1056	5928	1102	894
Self-employed	0	5	2	2	0	0	5	3	4	11	32	13	7
Other & unknown	18	28	30	39	50	45	63	43	45	11	372	4	10
Total	571	684	812	901	1063	1333	1509	1739	1939	2046	12597	2042	1904
Mathematical sciences													
College/university .	126	149	164	217	275	324	388	420	507	544	3114	581	600
Elem/sec school	0	0	1	1	0	0	1	0	1	1	5	0	0
Government	18	5	14	8	13	9	13	24	24	28	156	30	28
Nonprofit org	1	10	7	9	14	13	10	15	7	11	97	22	7
Business/industry ..	28	40	37	47	46	51	47	62	83	62	503	99	66
Self-employed	0	1	1	0	0	0	1	0	0	1	4	0	0
Other & unknown	4	4	3	4	5	4	2	5	6	0	37	0	2
Total	177	209	227	286	353	401	462	526	628	647	3916	732	703

See footnotes at end of table.

Table 13. Distribution of new science engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Male

	Year of doctorate												
Employment sector	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
Total, science & engineering													
College/university .	4425	4123	3472	3401	3124	2880	2575	2543	36063	2372	2350	4722	70947
Elem/sec school	67	85	67	65	76	63	46	37	601	55	60	115	1005
Government	1353	1224	1118	1213	1112	1073	894	895	10969	933	867	1800	18461
Nonprofit org	279	365	371	338	324	304	318	320	3247	359	305	664	6140
Business/industry ..	1514	1709	1780	1794	1484	1506	1641	1843	17483	1883	2015	3898	36241
Self-employed	49	52	62	55	53	70	77	75	571	69	90	159	904
Other & unknown	39	46	37	27	30	22	20	26	310	14	21	35	1580
Total	7726	7604	6907	6893	6203	5918	5571	5739	69244	5685	5708	11393	135278
Physical sciences													
College/university .	405	309	248	188	198	202	164	143	2882	117	113	230	7584
Elem/sec school	19	13	10	5	13	6	4	2	87	6	4	10	120
Government	228	201	170	139	118	132	97	121	1530	102	97	199	2689
Nonprofit org	27	23	23	19	15	12	13	15	250	12	11	23	644
Business/industry ..	292	390	439	484	368	402	469	553	4765	573	666	1239	11941
Self-employed	0	5	2	6	2	5	3	5	35	1	2	3	49
Other & unknown	0	3	0	0	1	1	0	3	14	0	0	0	325
Total	971	944	892	841	715	760	750	842	9563	811	893	1704	23352
Earth, env., & marine sciences													
College/university .	159	151	122	98	104	108	90	96	1231	90	83	173	2420
Elem/sec school	1	1	2	2	0	1	1	1	9	0	1	1	12
Government	66	78	77	94	72	91	72	59	708	69	63	132	1232
Nonprofit org	5	6	7	9	4	5	7	9	65	6	0	6	131
Business/industry ..	69	58	69	108	79	86	86	113	811	101	105	206	1571
Self-employed	3	0	4	1	2	1	2	2	19	0	3	3	34
Other & unknown	0	0	1	0	0	2	0	1	5	0	0	0	39
Total	303	294	282	312	261	294	258	281	2848	266	255	521	5439
Engineering													
College/university .	480	434	326	374	362	346	296	341	4137	335	340	675	9663
Elem/sec school	0	2	0	0	1	0	0	0	4	0	0	0	8
Government	389	322	276	300	253	258	185	187	2757	201	149	350	3979
Nonprofit org	47	68	68	40	34	34	22	33	496	27	25	52	1086
Business/industry ..	847	891	885	808	687	658	658	716	8146	700	712	1412	15486
Self-employed	18	6	10	6	11	10	12	9	102	10	6	16	150
Other & unknown	5	1	4	1	3	1	6	1	36	0	1	1	409
Total	1786	1724	1569	1529	1351	1307	1179	1287	15678	1273	1233	2506	30781
Mathematical sciences													
College/university .	525	442	397	386	351	302	306	297	4187	310	296	606	7907
Elem/sec school	4	1	5	5	0	2	3	2	22	2	1	3	30
Government	53	44	35	46	45	38	34	38	391	29	30	59	606
Nonprofit org	7	9	6	7	2	4	5	4	73	8	3	11	181
Business/industry ..	81	75	79	80	61	78	93	107	819	128	127	255	1577
Self-employed	0	2	3	2	1	3	2	2	15	2	2	4	23
Other & unknown	2	0	0	0	1	0	0	2	7	0	0	0	44
Total	672	573	525	526	461	427	443	452	5514	479	459	938	10368

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-61 - Con.[a]

Male

Employment sector	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Life sciences													
College/university .	486	453	480	543	595	616	687	760	900	925	6445	904	898
Elem/sec school	4	9	5	3	1	0	1	3	1	2	29	4	3
Government	120	114	135	126	124	146	158	200	202	170	1495	197	218
Nonprofit org	38	22	27	24	20	43	39	37	46	24	320	42	35
Business/industry ..	94	101	98	108	116	110	125	145	163	178	1238	191	153
Self-employed	4	3	3	1	3	3	1	1	0	1	20	7	4
Other & unknown	12	15	18	24	26	25	25	30	27	8	210	3	2
Total	758	717	766	829	885	943	1036	1176	1339	1308	9757	1348	1313
Social sciences													
College/university .	433	463	503	512	602	723	729	951	1071	1111	7098	1342	1501
Elem/sec school	5	7	8	2	1	1	1	0	0	1	26	3	4
Government	45	56	44	60	57	67	70	73	71	81	624	98	143
Nonprofit org	29	18	33	29	31	31	37	29	47	41	325	47	42
Business/industry ..	25	21	24	26	33	35	32	38	39	56	329	53	51
Self-employed	5	3	4	2	1	3	4	1	2	2	27	5	8
Other & unknown	14	7	10	6	9	11	18	12	13	8	108	11	12
Total	556	575	626	637	734	871	891	1104	1243	1300	8537	1559	1761
Psychology													
College/university .	187	196	223	229	269	285	358	417	478	524	3166	563	625
Elem/sec school	18	38	22	15	19	16	11	21	21	19	200	22	43
Government	109	110	127	107	128	95	91	127	129	170	1193	168	195
Nonprofit org	34	42	47	60	47	51	47	63	57	70	518	82	85
Business/industry ..	37	33	29	43	43	26	32	39	43	46	371	54	38
Self-employed	13	10	2	11	1	8	7	5	6	5	68	8	15
Other & unknown	14	12	18	18	23	8	15	18	22	15	163	6	6
Total	412	441	468	483	530	489	561	690	756	849	5679	903	1007
Total, non-science & engineering[1]													
College/university .	1549	1750	1853	2039	2372	2801	3150	3704	4221	4469	27908	5237	5593
Elem/sec school	291	318	382	375	421	513	500	558	625	539	4522	606	745
Government	84	81	94	93	122	122	126	144	150	260	1276	327	433
Nonprofit org	80	73	93	112	118	108	130	166	157	128	1165	155	228
Business/industry ..	44	37	49	50	49	48	91	76	100	86	630	105	130
Self-employed	13	10	5	9	11	15	8	11	11	12	105	26	24
Other & unknown	25	17	21	20	33	25	26	34	28	41	270	48	21
Total	2086	2286	2497	2698	3126	3632	4031	4693	5292	5535	35876	6504	7174
Total, all fields													
College/university .	3410	3717	3967	4370	5060	5913	6496	7625	8674	8838	58070	9886	10464
Elem/sec school	323	378	424	396	443	530	515	584	654	564	4811	640	806
Government	483	477	560	530	592	634	653	887	1000	1152	6968	1266	1581
Nonprofit org	228	228	292	335	322	356	376	408	434	415	3394	515	496
Business/industry ..	1116	1139	1123	1243	1311	1434	1662	1943	2183	2336	15490	2465	1982
Self-employed	37	34	19	28	17	31	28	22	24	39	279	62	66
Other & unknown	108	106	124	158	186	166	198	193	178	88	1505	76	56
Total	5705	6079	6509	7060	7931	9064	9928	11662	13147	13432	90517	14910	15451

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Male

Employment sector	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
	Year of doctorate												
Life sciences													
College/university .	782	757	649	578	540	492	475	491	6566	436	426	862	13873
Elem/sec school	8	10	6	5	4	5	2	3	51	2	6	8	88
Government	205	200	173	180	185	134	143	123	1758	139	117	256	3509
Nonprofit org	50	53	50	49	43	26	26	41	415	34	30	64	799
Business/industry ..	141	193	189	195	174	158	189	177	1750	194	210	404	3392
Self-employed	6	16	12	8	5	9	11	7	88	8	15	23	131
Other & unknown	5	4	2	2	2	0	0	3	23	1	2	3	236
Total	1197	1223	1081	1018	956	824	846	845	10651	814	806	1620	22028
Social sciences													
College/university .	1535	1461	1240	1255	1115	1042	885	808	12184	780	745	1525	20807
Elem/sec school	5	5	3	9	4	4	3	3	43	2	5	7	76
Government	140	149	158	189	172	148	142	132	1471	165	172	337	2432
Nonprofit org	49	70	59	54	45	45	51	49	511	67	49	116	952
Business/industry ..	56	60	63	73	66	69	70	85	646	85	86	171	1146
Self-employed	9	6	7	8	6	12	11	11	83	10	10	20	130
Other & unknown	27	27	24	16	19	16	10	11	173	10	16	26	307
Total	1821	1778	1554	1604	1427	1336	1172	1099	15111	1119	1083	2202	25850
Psychology													
College/university .	539	569	490	522	454	388	359	367	4876	304	347	651	8693
Elem/sec school	30	53	41	38	54	45	33	26	385	43	43	86	671
Government	272	230	229	265	267	272	221	235	2354	228	239	467	4014
Nonprofit org	94	136	158	160	181	178	194	169	1437	205	187	392	2347
Business/industry ..	28	52	56	46	49	55	76	92	546	102	109	211	1128
Self-employed	13	17	24	24	23	30	36	39	229	38	52	90	387
Other & unknown	0	11	6	8	4	2	4	5	52	3	2	5	220
Total	976	1068	1004	1063	1032	970	923	933	9879	923	979	1902	17460
Total, non-science & engineering[1]													
College/university .	5432	5284	4656	4226	4011	3477	3153	2946	44015	2765	2574	5339	77262
Elem/sec school	968	1035	928	999	1061	899	826	771	8838	842	802	1644	15004
Government	451	522	589	562	580	551	524	517	5056	510	474	984	7316
Nonprofit org	265	304	295	358	360	366	372	348	3051	398	348	746	4962
Business/industry ..	99	137	167	165	155	165	184	200	1507	213	240	453	2590
Self-employed	31	24	35	40	53	66	53	63	415	74	77	151	671
Other & unknown	19	28	22	25	15	12	12	13	215	9	17	26	511
Total	7265	7334	6692	6375	6235	5536	5124	4858	63097	4811	4532	9343	108316
Total, all fields													
College/university .	9857	9407	8128	7627	7135	6357	5728	5489	80078	5137	4924	10061	148209
Elem/sec school	1035	1120	995	1064	1137	962	872	806	9439	897	862	1759	16009
Government	1804	1746	1707	1775	1692	1624	1418	1412	16025	1443	1341	2784	25777
Nonprofit org	544	669	666	696	684	670	690	668	6298	757	653	1410	11102
Business/industry ..	1613	1846	1947	1959	1639	1671	1825	2043	18990	2096	2255	4351	38831
Self-employed	80	76	97	95	106	136	130	138	986	143	167	310	1575
Other & unknown	58	74	59	52	45	34	32	39	525	23	38	61	2091
Total	14991	14938	13599	13268	12438	11454	10695	10597	132341	10496	10240	20736	243594

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Female

Employment sector	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
	Year of doctorate												
Total, science & engineering													
College/university .	154	154	166	188	236	242	263	370	432	458	2663	460	573
Elem/sec school	8	10	8	9	6	4	5	17	14	7	88	9	18
Government	26	24	30	39	39	32	40	43	61	59	393	64	79
Nonprofit org	14	14	19	20	32	38	38	37	44	47	303	42	43
Business/industry ..	14	19	12	18	14	21	24	24	30	20	196	30	24
Self-employed	2	6	5	3	4	6	2	3	4	4	39	9	4
Other & unknown	4	5	2	5	5	0	5	3	1	7	37	10	4
Total	222	232	242	282	336	343	377	497	586	602	3719	624	745
Physical sciences													
College/university .	17	13	15	17	20	34	25	37	38	38	254	40	31
Elem/sec school	0	0	0	0	0	0	0	1	0	0	1	0	1
Government	1	1	2	4	2	2	1	2	6	2	23	5	3
Nonprofit org	0	0	0	0	1	1	1	2	4	2	11	3	0
Business/industry ..	10	14	6	8	8	10	10	16	13	11	106	12	6
Self-employed	0	0	0	0	0	0	0	1	0	0	1	0	0
Other & unknown	0	0	0	0	0	0	0	0	1	1	2	1	0
Total	28	28	23	29	31	47	37	59	62	54	398	61	41
Earth, env., & marine sciences													
College/university .	0	1	1	1	2	1	4	2	3	6	21	6	4
Elem/sec school	0	0	1	0	0	0	0	0	0	0	1	0	0
Government	0	0	0	0	0	0	1	2	1	3	7	1	3
Nonprofit org	0	0	0	0	0	0	0	0	0	0	0	2	0
Business/industry ..	0	0	0	0	0	0	0	0	0	1	1	0	0
Self-employed	0	0	0	0	0	0	0	0	0	0	0	0	0
Other & unknown	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	2	1	2	1	5	4	4	10	30	9	7
Engineering													
College/university .	1	4	1	0	0	3	1	0	2	3	15	3	0
Elem/sec school	0	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	1	1	0	0	0	1	0	3	1	0
Nonprofit org	0	0	0	0	1	0	0	1	0	0	2	0	0
Business/industry ..	1	0	0	3	1	0	4	1	4	1	15	1	3
Self-employed	0	0	0	0	0	0	0	0	0	0	0	0	0
Other & unknown	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	4	1	4	3	3	5	2	7	4	35	5	3
Mathematical sciences													
College/university .	8	9	11	18	23	29	21	32	27	33	211	36	39
Elem/sec school	1	0	0	0	0	0	0	0	0	0	1	0	0
Government	0	0	0	0	0	0	0	1	0	0	1	0	1
Nonprofit org	0	0	0	1	0	1	1	1	0	0	4	0	0
Business/industry ..	1	1	2	0	1	1	2	1	0	1	10	0	2
Self-employed	0	0	0	0	0	0	0	0	0	0	0	0	1
Other & unknown	0	0	0	0	0	0	0	1	0	0	1	0	0
Total	10	10	13	19	24	31	24	36	27	34	228	36	43

See footnotes at end of table.

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Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Female

Employment sector	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
	Year of doctorate												
Total, science & engineering													
College/university .	604	657	742	776	755	747	726	756	6796	763	739	1502	10961
Elem/sec school	28	24	20	34	36	36	40	30	275	57	59	116	479
Government	81	122	106	125	141	143	129	210	1200	190	237	427	2020
Nonprofit org	62	76	73	92	94	122	156	166	926	164	191	355	1584
Business/industry ..	26	65	52	79	94	101	151	169	791	245	264	509	1496
Self-employed	8	6	10	12	20	15	16	27	127	31	47	78	244
Other & unknown	8	10	4	5	3	7	5	7	63	9	10	19	119
Total	817	960	1007	1123	1143	1171	1223	1365	10178	1459	1547	3006	16903
Physical sciences													
College/university .	40	28	19	26	26	17	17	24	268	27	16	43	565
Elem/sec school	2	2	1	1	0	1	1	1	10	0	0	0	11
Government	6	4	4	6	6	4	11	11	60	8	15	23	106
Nonprofit org	1	0	0	1	4	2	4	2	17	1	4	5	33
Business/industry ..	8	17	22	31	27	29	45	50	247	78	89	167	520
Self-employed	0	1	0	0	0	0	0	0	1	1	1	2	4
Other & unknown	0	0	0	0	0	0	0	0	1	0	0	0	3
Total	57	52	46	65	63	53	78	88	604	115	125	240	1242
Earth, env., & marine sciences													
College/university .	3	7	9	5	8	7	6	10	65	11	6	17	103
Elem/sec school	0	0	0	0	0	0	0	0	0	0	0	0	1
Government	0	1	0	2	7	3	6	2	25	5	6	11	43
Nonprofit org	0	0	2	0	1	2	0	1	8	0	0	0	8
Business/industry ..	0	3	2	5	8	3	14	6	41	9	12	21	63
Self-employed	0	0	0	0	0	0	0	0	0	0	0	0	0
Other & unknown	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	11	13	12	24	15	26	19	139	25	24	49	218
Engineering													
College/university .	5	7	8	15	9	12	13	11	83	17	21	38	136
Elem/sec school	0	0	0	0	0	0	0	0	0	0	0	0	0
Government	2	3	1	4	3	6	5	6	31	6	5	11	45
Nonprofit org	0	0	0	1	0	1	0	2	4	1	1	2	8
Business/industry ..	2	7	4	11	10	16	12	18	84	29	27	56	155
Self-employed	0	1	0	0	0	0	0	0	1	0	0	0	1
Other & unknown	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	9	18	13	31	22	35	30	37	203	53	55	108	346
Mathematical sciences													
College/university .	38	51	47	50	56	46	56	65	484	56	55	111	806
Elem/sec school	1	0	0	1	1	0	0	0	3	2	0	2	6
Government	1	4	2	4	2	2	3	8	27	4	3	7	35
Nonprofit org	1	0	1	1	0	1	2	3	9	0	1	1	14
Business/industry ..	2	7	1	5	3	8	14	18	60	12	20	32	102
Self-employed	0	0	0	0	0	0	0	0	1	0	0	0	1
Other & unknown	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	43	62	51	61	62	57	75	94	584	74	79	153	965

See footnotes at end of table.

Table 13. Distribution of new science and engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Female

Employment sector	Year of doctorate 1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total 1960-69	1970	1971
Life sciences													
College/university .	52	52	53	58	64	65	70	104	121	109	748	101	134
Elem/sec school	0	0	1	1	0	0	0	1	0	0	3	1	2
Government	4	3	8	7	9	6	8	11	13	5	74	6	7
Nonprofit org	3	5	6	5	3	10	7	9	15	4	67	7	3
Business/industry ..	1	3	2	4	2	7	5	2	4	2	32	7	8
Self-employed	0	0	0	0	0	0	0	1	0	0	1	2	0
Other & unknown	1	1	0	0	1	0	1	0	0	2	6	1	0
Total	61	64	70	75	79	88	91	128	153	122	931	125	154
Social sciences													
College/university .	32	34	43	45	59	56	76	106	132	142	725	152	214
Elem/sec school	1	3	1	2	1	1	0	0	0	0	9	0	0
Government	6	1	5	7	3	4	4	2	9	6	47	6	12
Nonprofit org	3	1	4	4	4	4	2	5	3	8	38	6	14
Business/industry ..	0	0	1	2	0	2	0	2	3	2	12	3	1
Self-employed	0	0	1	1	2	0	0	1	0	1	6	0	0
Other & unknown	1	1	1	1	1	0	0	1	0	1	7	3	0
Total	43	40	56	62	70	67	82	117	147	160	844	170	241
Psychology													
College/university .	44	41	42	49	68	54	66	89	109	127	689	122	151
Elem/sec school	6	7	5	6	5	3	5	15	14	7	73	8	15
Government	15	19	15	20	24	20	26	25	31	43	238	45	53
Nonprofit org	8	8	9	10	23	22	27	19	22	33	181	24	26
Business/industry ..	1	1	1	1	2	1	3	2	6	2	20	7	4
Self-employed	2	6	4	2	2	6	2	0	4	3	31	7	3
Other & unknown	2	3	1	4	3	0	4	1	0	3	21	5	4
Total	78	85	77	92	127	106	133	151	186	218	1253	218	256
Total, non-science & engineering[1]													
College/university .	302	325	353	416	456	504	627	755	923	1022	5683	1191	1269
Elem/sec school	47	60	61	56	69	88	86	107	95	78	747	97	148
Government	7	10	14	20	15	16	19	30	33	37	201	43	72
Nonprofit org	9	12	15	20	18	21	16	34	29	27	201	39	49
Business/industry ..	4	1	1	3	1	4	7	5	6	5	37	10	11
Self-employed	1	4	5	4	2	4	3	4	2	2	31	9	8
Other & unknown	2	4	4	0	3	5	3	4	1	8	34	8	6
Total	372	416	453	519	564	642	761	939	1089	1179	6934	1397	1563
Total, all fields													
College/university .	456	479	519	604	692	746	890	1125	1355	1480	8346	1651	1842
Elem/sec school	55	70	69	65	75	92	91	124	109	85	835	106	166
Government	33	34	44	59	54	48	59	73	94	96	594	107	151
Nonprofit org	23	26	34	40	50	59	54	71	73	74	504	81	92
Business/industry ..	18	20	13	21	15	25	31	29	36	25	233	40	35
Self-employed	3	10	10	7	6	10	5	7	6	6	70	18	12
Other & unknown	6	9	6	5	8	5	8	7	2	15	71	18	10
Total	594	648	695	801	900	985	1138	1436	1675	1781	10653	2021	2308

See footnotes at end of table.

Table 13. Distribution of new science engineering doctorates with definite employment commitments in the United States by employment sector, major field, and sex: 1960-81 - Con.[a]

Female

Employment sector	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-79	1980	1981	Total 1980-81	Total 1960-81
	Year of doctorate												
Life sciences													
College/university .	99	144	121	129	118	104	115	115	1180	126	123	249	2177
Elem/sec school	4	1	4	2	1	2	1	1	19	0	1	1	23
Government	8	13	13	13	6	16	17	21	120	27	34	61	255
Nonprofit org	15	9	7	9	9	7	12	8	86	10	9	19	172
Business/industry ..	2	12	9	8	13	21	16	25	121	40	38	78	231
Self-employed	0	0	1	2	0	1	1	0	7	0	3	3	11
Other & unknown	1	0	0	0	0	1	0	1	4	0	0	0	10
Total	129	179	155	163	147	152	162	171	1537	203	208	411	2879
Social sciences													
College/university .	229	236	304	321	313	303	302	282	2656	262	255	517	3898
Elem/sec school	2	1	0	1	0	0	1	2	7	4	2	6	22
Government	11	14	15	16	25	22	17	38	176	36	35	71	294
Nonprofit org	9	15	10	10	14	14	16	27	135	25	34	59	232
Business/industry ..	4	7	5	8	10	8	21	14	81	26	25	51	144
Self-employed	3	0	1	2	1	1	0	3	11	3	3	6	23
Other & unknown	3	2	1	1	3	5	2	5	25	6	7	13	45
Total	261	275	336	359	366	353	359	371	3091	362	361	723	4658
Psychology													
College/university .	190	184	234	230	225	258	217	249	2060	264	263	527	3276
Elem/sec school	19	20	15	29	34	33	37	26	236	51	56	107	416
Government	53	83	71	80	92	90	70	124	761	104	139	243	1242
Nonprofit org	36	52	53	70	66	95	122	123	667	127	142	269	1117
Business/industry ..	8	12	9	11	23	16	29	38	157	51	53	104	281
Self-employed	5	4	8	8	19	13	15	24	106	27	40	67	204
Other & unknown	4	8	3	4	0	1	3	1	33	3	2	5	59
Total	315	363	393	432	459	506	493	585	4020	627	695	1322	6595
Total, non-science & engineering[1]													
College/university .	1458	1563	1545	1732	1871	1793	1806	1888	16116	2009	2042	4051	25850
Elem/sec school	191	209	246	296	347	350	356	397	2637	525	549	1074	4458
Government	72	106	112	177	164	181	214	251	1392	231	290	521	2114
Nonprofit org	51	67	71	102	123	112	122	147	883	149	157	306	1390
Business/industry ..	16	19	33	42	29	42	56	82	340	113	91	204	581
Self-employed	5	12	8	23	21	21	34	33	174	45	69	114	319
Other & unknown	6	8	4	5	11	5	4	10	67	7	4	11	112
Total	1799	1984	2019	2377	2566	2504	2592	2808	21609	3079	3202	6281	34824
Total, all fields													
College/university .	2062	2220	2287	2508	2626	2540	2532	2644	22912	2772	2781	5553	36811
Elem/sec school	219	233	266	330	383	386	396	427	2912	582	608	1190	4937
Government	153	228	218	302	305	324	343	461	2592	421	527	948	4134
Nonprofit org	113	143	144	194	217	234	278	313	1809	313	348	661	2974
Business/industry ..	42	84	85	121	123	143	207	251	1131	358	355	713	2077
Self-employed	13	18	18	35	41	36	50	60	301	76	116	192	563
Other & unknown	14	18	8	10	14	12	9	17	130	16	14	30	231
Total	2616	2944	3026	3500	3709	3675	3815	4173	31787	4538	4749	9287	51727

[a] Only doctorates with definite employment commitments in the United States are reported here. A "definite commitment" is defined as having a signed contract, acceptance of a formal offer, etc.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

Table 14. Proportion of new science and engineering doctorates pursuing immediate employment in field of degree by sex: for selected years[a]

Field of employment	1970	1972	1974	1976	1978	1980	1981
Total, male and female							
Total, science & eng .	89.5	77.1	75.8	70.9	70.6	81.0	83.6
Physics & astronomy.	77.5	66.3	62.2	58.9	56.1	66.9	68.8
Chemistry	88.1	69.6	71.2	72.6	68.5	79.4	83.1
Earth & env sci	86.1	77.7	69.5	70.2	69.8	84.5	83.3
Engineering	84.4	72.8	71.5	69.8	67.9	80.7	83.5
Chemical	84.0	67.4	68.3	65.0	57.4	78.8	81.5
Civil	74.4	70.0	60.2	58.0	48.5	69.9	73.9
Electrical	78.2	64.6	62.6	59.3	60.7	69.4	74.0
Mechanical	69.1	59.2	59.5	57.7	54.6	69.8	68.8
Mathematical science	86.3	75.4	72.6	70.4	67.8	81.0	81.1
Agricultural sci ...	73.8	68.6	65.7	62.9	63.4	73.7	77.9
Biological sciences.	77.7	66.4	67.0	59.8	62.3	69.4	68.6
Social sciences	81.2	71.4	70.6	62.5	60.8	68.7	70.5
Psychology	87.1	77.0	75.0	73.6	72.6	78.8	81.3
Total, non sci/eng[1]...	86.4	76.5	75.3	67.5	68.5	77.7	79.5
Male							
Total, science & eng .	89.9	77.3	76.1	71.0	70.6	81.8	84.8
Physics & astronomy.	77.3	66.1	62.4	58.1	55.5	67.7	68.5
Chemistry	88.4	69.6	71.3	71.8	69.0	79.1	84.3
Earth & env sci	86.3	77.7	69.5	69.6	69.6	84.4	84.8
Engineering	84.5	72.7	71.5	69.7	68.1	80.8	84.0
Chemical	84.0	67.8	67.9	64.8	57.5	79.2	81.3
Civil	74.8	70.0	59.8	58.1	50.0	70.4	74.0
Electrical	78.2	64.3	62.5	58.7	61.1	69.4	74.3
Mechanical	69.3	59.0	59.5	58.2	54.4	70.6	68.2
Mathematical science	85.9	75.7	72.1	70.7	69.2	81.2	80.3
Agricultural sci ...	73.9	68.5	67.0	62.7	64.0	74.6	78.2
Biological sciences.	77.9	66.0	67.4	58.5	58.1	68.0	67.8
Social sciences	81.3	71.5	70.3	62.4	61.3	69.5	72.3
Psychology	88.2	77.5	75.0	73.2	71.5	79.1	82.3
Total, non sci/eng[1]...	86.4	76.0	74.9	66.0	66.3	77.3	78.8
Female							
Total, science & eng .	84.6	74.8	73.8	70.8	70.7	77.8	78.5
Physics & astronomy.	90.0	73.3	40.0	81.8	68.8	56.0	73.9
Chemistry	83.6	69.2	70.8	79.0	65.2	81.1	76.4
Earth & env sci	80.0	75.0	70.6	76.9	71.4	85.7	67.9
Engineering	40.0	100.0	76.5	74.1	58.8	78.7	72.3
Chemical			100.0	75.0	50.0	70.0	87.5
Civil			100.0	50.0		50.0	66.7
Electrical	100.0	100.0	100.0	100.0	42.9	71.[illegible]	66.7
Mechanical		100.0	60.0		100.0	25.0	100.0
Mathematical science	94.7	69.6	78.2	67.7	59.8	79.5	85.4
Agricultural sci ...	66.7	71.4	26.7	66.7	53.3	63.4	75.0
Biological sciences.	76.5	69.4	64.5	66.2	78.6	73.7	70.9
Social sciences	80.2	70.6	71.6	62.7	58.9	66.1	64.9
Psychology	82.8	75.4	75.2	74.4	74.7	78.5	79.9
Total, non sci/eng[1]...	86.6	78.6	76.5	71.1	72.8	78.3	80.6

Year of doctorate

[a] Only doctorates with definite employment commitments in the United States are reported here. A "definite commitment" is defined as having a signed contract, acceptance of a formal offer, etc.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

Table 15. Proportion of new science and engineering doctorates pursuing postdoctoral study in field of degree by sex: for selected years[a]

Total, male and female

Field of study	Year of doctorate 1970	1972	1974	1976	1978	1980	1981
Total, science & eng .	96.0	91.8	90.9	88.1	89.3	83.6	85.8
Physics & astronomy.	95.1	87.0	90.3	84.6	89.2	86.1	89.9
Chemistry	85.5	80.9	84.1	77.5	78.2	72.4	74.8
Earth & env sci	95.5	97.8	97.6	88.5	90.7	80.0	84.7
Engineering	92.2	91.0	86.7	68.2	75.3	67.1	73.5
Chemical	83.3	84.6	84.0	77.1	61.3	70.8	66.7
Civil	93.3	89.3	80.0	57.1	71.4	55.6	68.8
Electrical	85.7	85.2	85.4	51.7	58.3	58.5	51.4
Mechanical	84.2	96.3	87.1	75.0	70.7	59.4	52.4
Mathematical science	97.2	89.2	91.2	71.7	82.1	83.1	83.1
Agricultural sci ...	90.9	89.2	84.8	60.0	71.6	54.9	63.2
Biological sciences.	92.7	88.3	86.9	81.8	84.1	78.4	78.9
Social sciences	84.9	84.9	81.0	62.7	68.8	57.4	64.9
Psychology	94.2	87.9	87.7	71.3	75.5	72.3	75.4
Total, non sci/eng ...	86.0	86.3	85.8	64.7	68.0	65.4	64.9
Sex - Male							
Total, science & eng .	96.0	92.0	90.9	88.6	89.6	83.6	85.8
Physics & astronomy.	95.0	87.3	90.2	84.5	89.5	86.5	90.6
Chemistry	86.0	81.1	84.5	79.4	80.6	74.1	75.1
Earth & env sci	95.3	97.7	97.5	89.4	90.9	80.5	86.8
Engineering	92.2	91.0	86.7	68.5	75.3	67.7	74.0
Chemical	82.6	84.6	84.0	77.1	61.3	69.6	66.7
Civil	93.3	89.3	78.6	57.1	71.4	58.8	66.7
Electrical	85.7	85.2	85.4	51.7	60.0	57.5	50.0
Mechanical	84.2	96.3	87.1	75.0	70.7	61.3	52.4
Mathematical science	97.1	87.8	91.1	72.9	82.1	84.8	84.4
Agricultural sci ...	90.5	89.4	84.0	60.8	70.0	57.1	64.8
Biological sciences.	92.4	88.1	86.4	80.8	83.6	77.6	77.7
Social sciences	88.9	86.7	79.1	65.1	70.2	58.1	67.6
Psychology	94.2	87.1	88.3	70.2	73.6	66.7	74.4
Total, non sci/eng ...	87.4	85.6	86.4	69.4	66.8	67.0	68.0
Female							
Total, science & eng .	96.1	90.7	90.8	85.4	88.2	83.6	85.7
Physics & astronomy.	100.0	75.0	93.8	85.7	82.4	79.2	80.8
Chemistry	79.6	78.3	80.4	55.8	61.2	64.8	73.3
Earth & env sci	100.0	100.0	100.0	77.8	87.5	76.5	60.0
Engineering	100.0		100.0	33.3	75.0	40.0	62.5
Chemical	100.0					100.0	
Civil			100.0				100.0
Electrical						100.0	100.0
Mathematical science	100.0	100.0	100.0		83.3	50.0	66.7
Agricultural sci ...	100.0	87.5	100.0	50.0	100.0	44.4	56.3
Biological sciences.	94.3	88.8	88.5	85.1	85.7	80.5	81.8
Social sciences	71.4	70.0	84.8	57.5	65.9	56.4	58.1
Psychology	94.4	90.6	86.3	73.3	78.5	80.0	76.8
Total, non sci/eng ...	80.5	88.5	84.0	53.7	70.5	63.0	59.0

[a] Only doctorates with definite postdoctoral study commitments in the United States are reported here. A "definite commitment" is defined as having a signed contract, acceptance of a formal offer, etc.

[1] Non-science engineering doctorates in this table include doctorates whose field of specialization is unknown.

SOURCES: National Science Foundation and National Research Council

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appendix

page
reproduction of survey questionnaire 116

SURVEY OF EARNED DOCTORATES
AWARDED IN
THE UNITED STATES

Conducted by
The Commission on Human Resources of
the National Research Council
in Cooperation with
The American Council of Learned Societies,
The Social Science Research Council,
The Council of Graduate Schools in the United States,
and Other Graduate Deans

Supported by
The National Science Foundation,
The Department of Education,
The National Endowment for the Humanities, and
The National Institutes of Health

To the Doctoral Candidate:

This is a brief description of the Survey of Earned Doctorates indicating how the resulting data are used and how the individual confidentiality of data is protected. The basic purpose of this survey is to gather objective data about doctoral graduates, data that are important in improving graduate education both at your home institution and at a national level. Often, decisions by federal, state, and private agencies to develop new programs or support present ones are based in part on the data developed by this survey. We ask your cooperation with the project.

The information requested on the accompanying questionnaire is largely self-explanatory. Please complete it, detach it along the perforated line, and return it to your Graduate Dean. On the back of this sheet is a Specialties List with code numbers and titles for classifying your fields of specialization. This will be useful in connection with several items on the questionnaire. If none of the detailed fields listed seems to be appropriate, note the "General" and "Other" categories.

What is the Survey of Earned Doctorates?

The survey form is distributed annually with the cooperation of the Graduate Deans and filled out by all graduates who have completed requirements for their doctoral degrees. Research doctorates in all fields are included, but professional degrees such as the MD, DDS, and DVM are not included because information about recipients of those degrees is compiled elsewhere. The cumulative file goes back to 1920 and is called the Doctorate Records File.

The use of the doctoral data has been increasing, partly because of the implications for graduate education stemming from the change in the growth pattern of the number of persons receiving doctorates (562 in 1920; 3,278 in 1940; 9,735 in 1960; 29,497 in 1970; peaking at 33,727 in 1973; and now at 31,200 in 1979). This survey attempts to supply some of the information as of the time the doctorate is received.

What uses are made of the Survey data?

The data collected by this survey questionnaire become part of the Doctorate Records File maintained by the Commission on Human Resources of the National Research Council. In addition, all data collected will be provided to the National Science Foundation, the National Endowment for the Humanities, the National Institutes of Health, and the Department of Education. The Survey data are collected with the intention that they will be put to use, but only under carefully defined conditions. Such data as the number of degrees awarded in each field of specialization, the educational preparation of degree recipients, their sources of financial support, the length of time required to attain the degree, and postdoctoral employment plans of doctorate recipients are of great interest to graduate schools, employers, the scholarly community, and the nation generally. The Doctorate Records File is used for a limited number of carefully defined follow-up research studies. Each year a sample of doctorate recipients is selected for inclusion in a longitudinal research file maintained for the National Science Foundation, the National Institutes of Health, and the National Endowment for the Humanities.

Statistical summaries from the Doctorate Records File are used by educational institutions, professional societies, and government agencies. Some specific examples are:

- An extensive statistical summary of the data is published and distributed to all graduate schools about every five years.(1) These reports have been widely used by graduate schools and states to evaluate their progress in providing doctoral education. The data may also be useful to graduate students as an aid in selecting a graduate department.
- Annual reports containing statistical summaries based on the most recent year's Survey are distributed to graduate schools, government agencies, and any others on request.(2)

The confidentiality of Survey data is carefully protected.

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provided will be treated as confidential, will be safeguarded in accordance with the provisions of the Privacy Act of 1974, and will be used for statistical purposes only. Information will be released only in the form of statistical summaries or in a form which does not identify information about any particular person. There are only two exceptions to this policy: (1) information (name, year, and field of degree) is released to institutions from which you received degrees and to other organizations as part of the address search procedure for follow-up research studies; and (2) information from your form will be made available to the institution where you receive your doctoral degree and to the National Science Foundation, the National Endowment for the Humanities, the National Institutes of Health, and the Department of Education. Your response is entirely voluntary and your failure to provide some or all of the information will in no way adversely affect you.

(1) National Academy of Sciences, *A Century of Doctorates — Data Analyses of Growth and Change*, Washington, D.C. 1978.
(2) National Academy of Sciences, *Summary Report 1979, Doctorate Recipients from United States Universities*, Washington, D.C. March, 1980.

SPECIALTIES LIST

MATHEMATICS

000 Algebra
010 Analysis & Functional Analysis
020 Geometry
030 Logic
040 Number Theory
050 Probability & Math. Statistics (see also 544, 670, 725, 727, 920)
060 Topology
080 Computing Theory & Practice
082 Operations Research (see also 478)
085 Applied Mathematics
098 Mathematics, General
099 Mathematics, Other*

COMPUTER SCIENCES

079 Computer Sciences* (see also 437)

ASTRONOMY

101 Astronomy
102 Astrophysics

PHYSICS

110 Atomic & Molecular
132 Acoustics
134 Fluids
135 Plasma
136 Optics
138 Thermal
140 Elementary Particles
150 Nuclear Structure
160 Solid State
198 Physics, General
199 Physics, Other*

CHEMISTRY

200 Analytical
210 Inorganic
220 Organic
230 Nuclear
240 Physical
250 Theoretical
270 Pharmaceutical
275 Polymer
298 Chemistry, General
299 Chemistry, Other*

EARTH, ENVIRONMENTAL AND MARINE SCIENCES

301 Mineralogy, Petrology
305 Geochemistry
310 Stratigraphy, Sedimentation
320 Paleontology
330 Structural Geology
341 Geophysics (Solid Earth)
350 Geomorph. & Glacial Geology
391 Applied Geol., Geol. Engr. & Econ. Geol.
360 Hydrology & Water Resources
370 Oceanography
397 Marine Sciences, Other*
381 Atmospheric Physics and Chemistry
382 Atmospheric Dynamics
383 Atmospheric Sciences, Other*
388 Environmental Sciences, General (see also 480, 528)
389 Environmental Sciences, Other*
398 Earth Sciences, General
399 Earth Sciences, Other*

ENGINEERING

400 Aeronautical & Astronautical
410 Agricultural
415 Biomedical
420 Civil
430 Chemical
435 Ceramic
437 Computer
440 Electrical
445 Electronics
450 Industrial
455 Nuclear
460 Engineering Mechanics
465 Engineering Physics
470 Mechanical
475 Metallurgy & Phys. Met. Engr.
476 Systems Design & Systems Science
478 Operations Research (see also 082)
479 Fuel Tech. & Petrol. Engr.
480 Sanitary & Environmental
486 Mining
497 Materials Science
498 Engineering, General
499 Engineering, Other*

AGRICULTURAL SCIENCES

500 Agronomy
501 Agricultural Economics
502 Animal Husbandry
503 Food Science & Technology
504 Fish & Wildlife
505 Forestry
506 Horticulture
507 Soils & Soil Science
510 Animal Science & Animal Nutrition
511 Phytopathology
518 Agriculture, General
519 Agriculture, Other*

MEDICAL SCIENCES

522 Public Health & Epidemiology
523 Veterinary Medicine
526 Nursing
527 Parasitology
528 Environmental Health
534 Pathology
536 Pharmacology
537 Pharmacy
538 Medical Sciences, General
539 Medical Sciences, Other*

BIOLOGICAL SCIENCES

540 Biochemistry
542 Biophysics
544 Biometrics & Biostatistics (see also 050, 670, 725, 727, 920)
545 Anatomy
546 Cytology
547 Embryology
548 Immunology
550 Botany
560 Ecology
564 Microbiology & Bacteriology
566 Physiology, Animal
567 Physiology, Plant
569 Zoology
570 Genetics
571 Entomology
572 Molecular Biology
576 Nutrition and/or Dietetics
578 Biological Sciences, General
579 Biological Sciences, Other*

PSYCHOLOGY

600 Clinical
610 Counseling & Guidance
620 Developmental & Gerontological
630 Educational
635 School Psychology
641 Experimental
642 Comparative
643 Physiological
650 Industrial & Personnel
660 Personality
670 Psychometrics (see also 050, 544, 725, 727, 920)
680 Social
698 Psychology, General
699 Psychology, Other*

SOCIAL SCIENCES

700 Anthropology
708 Communications*
710 Sociology
720 Economics (see also 501)
725 Econometrics (see also 050, 544, 670, 727, 920)
727 Statistics (see also 050, 544, 670, 725, 920)
740 Geography
745 Area Studies*
751 Political Science
752 Public Administration
755 International Relations
760 Criminology & Criminal Justice
770 Urban & Reg. Planning
798 Social Sciences, General
799 Social Sciences, Other*

HUMANITIES

802 History & Criticism of Art
804 History, American
805 History, European
806 History, Other*
807 History & Philosophy of Science
808 American Studies
809 Theatre and Theatre Criticism
830 Music
831 Speech as a Dramatic Art (see also 885)
832 Archeology
833 Religion (see also 881)
834 Philosophy
835 Linguistics
836 Comparative Literature
878 Humanities, General
879 Humanities, Other*

LANGUAGES & LITERATURE

811 American
812 English
821 German
822 Russian
823 French
824 Spanish & Portuguese
826 Italian
827 Classical*
829 Other Languages*

EDUCATION

900 Foundations: Social & Philosoph.
910 Educational Psychology
908 Elementary Educ., General
909 Secondary Educ., General
918 Higher Education
919 Adult Educ. & Extension Educ.
920 Educ. Meas. & Stat.
929 Curriculum & Instruction
930 Educ. Admin. & Superv.
940 Guid., Couns., & Student Pers.
950 Special Education (Gifted, Handicapped, etc.)
960 Audio-Visual Media

TEACHING FIELDS

970 Agriculture Educ.
972 Art Educ.
974 Business Educ.
975 Early Childhood Educ.
976 English Educ.
978 Foreign Languages Educ.
980 Home Economics Educ.
982 Industrial Arts Educ.
984 Mathematics Educ.
986 Music Educ.
987 Nursing Educ.
988 Phys. Ed., Health, & Recreation
989 Reading Education
990 Science Educ.
992 Social Science Educ.
993 Speech Education
994 Vocational Educ.
996 Other Teaching Fields*
998 Education, General
999 Education, Other*

OTHER PROFESSIONAL FIELDS

881 Theology (see also 833)
882 Business Administration
883 Home Economics
884 Journalism
885 Speech & Hearing Sciences (see also 831)
886 Law & Jurisprudence
887 Social Work
891 Library & Archival Science
897 Professional Field, Other*

899 OTHER FIELDS*

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* Identify the specific field in the space provided on the questionnaire.

NSF Form 558 1979
OMB No. 99-R0290
Approval Expires June 30, 1981

SURVEY OF EARNED DOCTORATES

This form is to be returned to the GRADUATE DEAN, for forwarding to .... Commission on Human Resources
National Research Council
2101 Constitution Avenue, Washington, D. C. 20418

Please print or type.

1. Name in full: .... (9-30)
(Last Name) (First Name) (Middle Name)

Cross Reference: Maiden name or former name legally changed ....

2. Permanent address through which you could always be reached: (Care of, if applicable) ....

....
(Number) (Street) (City)

....
(State) (Zip Code) (Or Country if not U.S.)

3. U.S. Social Security Number: _ _ _ - _ _ - _ _ _ _ (31-39)

4. Date of birth: .... **Place of birth:** ....
(10-14) (Month) (Day) (Year) (15-16) (State) (Or Country if not U.S.)

5. Sex: 1 ☐ Male 2 ☐ Female (17)

6. Marital status: 1 ☐ Married 2 ☐ Not married (including widowed, divorced) (18)

7. Citizenship: 0 ☐ U.S. native 2 ☐ Non U.S., Immigrant (Permanent Resident)
1 ☐ U.S. naturalized 3 ☐ Non-U.S., Non-Immigrant (Temporary Resident) (19)
If Non-U.S., indicate country of present citizenship .... (20-21)

8. Racial or ethnic group: (Check only one.) *A person having origins in —*
0 ☐ American Indian or Alaskan Native .... any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.
1 ☐ Asian or Pacific Islander .... any of the original peoples of the Far East, Southeast Asia,, the Indian Subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa.
2 ☐ Black, not of Hispanic Origin .... any of the black racial groups of Africa.
3 ☐ White, not of Hispanic Origin .... any of the original peoples of Europe, North Africa, or the Middle East.
4 ☐ Puerto Rican .... Puerto Rico, regardless of race.
5 ☐ Mexican-American .... Mexico, regardless of race.
6 ☐ Other Hispanic .... Central or South America, Cuba, or other Spanish culture, regardless of race. (22-24)

9. Number of dependents: Do not include yourself. (Dependent = someone receiving at least one half of his or her support from you) .... (25)

EDUCATION

10. High school last attended: .... (26-27)
(School Name) (City) (State)

Year of graduation from high school: .... (28-29)

11. List in the table below all collegiate and graduate institutions you have attended including 2-year colleges. List chronologically, and include your doctoral institution as the last entry.

Institution Name	Location	Years Attended		Major Field		Minor Field	Degree (if any)		
				Use Specialties List			Title of Degree	Granted	
		From	To	Name	Number	Number		Mo.	Yr.

12. Enter below the title of your doctoral dissertation and the most appropriate classification number and field. If a project report or a musical or literary composition (not a dissertation) is a degree requirement, please check box. ☐ (12)

Title .... Classify using Specialties List

.... Number Name of field

....

13. Name the department (or interdisciplinary committee, center, institute, etc.) and school or college of the university which supervised your doctoral program: ....
(Department/Institute/Committee/Program) (School)

14. Name of your adviser for dissertation, project report or music/literary composition: ....
(Last Name) (First Name) (Middle Initial)

continued on next page

SURVEY OF EARNED DOCTORATES, Cont.

15. Please enter a "1" beside your primary source of support during graduate study. Enter a "2" beside your secondary source of support during graduate study. Check (√) all other sources from which support was received.

a — NSF Fellowship
b — NSF Traineeship
c — NIH Fellowship
d — NIH Traineeship
e — NDEA Fellowship
f — Title IX Graduate & Professional Opportunities Pgm. Fellowship
g — Other HEW
h — AEC/ERDA/DOE Fellowship
i — NASA Traineeship
j — GI Bill
k — Other Federal support (specify) ....
l — Woodrow Wilson Fellowship
m — Other U.S. national fellowship (specify) ....
n — University Fellowship
o — Teaching Assistantship
p — Research Assistantship
q — Educational fund of industrial or business firm
r — Other institutional funds (specify) ....
s — Own earnings
t — Spouse's earnings
u — Family contributions
v — Loans (NDSL direct)
w — Other loans
x — Other (specify) ....

(26-49)

16. Please check the space which most fully describes your status during the year immediately preceding the doctorate.

0 ☐ Held fellowship
1 ☐ Held assistantship
2 ☐ Held own research grant
3 ☐ Not employed
4 ☐ Part-time employed

Full-time Employed in: (Other than 0, 1, 2)
5 ☐ College or university, teaching
6 ☐ College or university, non-teaching
7 ☐ Elem. or sec. school, teaching
8 ☐ Elem. or sec. school, non-teaching
9 ☐ Industry or business
(11) ☐ Other (specify) ....

(12) ☐ Any other (specify) .... (50)

POSTGRADUATION PLANS

17. How well defined are your postgraduation plans?
0 ☐ Am returning to, or continuing in, predoctoral employment
1 ☐ Have signed contract or made definite commitment
2 ☐ Am negotiating with one or more specific organizations
3 ☐ Am seeking appointment but have no specific prospects
4 ☐ Other (specify) .... (51)

18. What are your immediate postgraduation plans?
0 ☐ Postdoctoral fellowship
1 ☐ Postdoctoral research associateship
2 ☐ Traineeship
3 ☐ Other study (specify) ....
Go to Item "19"
4 ☐ Employment (other than 0, 1, 2, 3)
5 ☐ Military service
6 ☐ Other (specify)......................... (52)
Go to Item "20"

19. If you plan to be on a postdoctoral fellowship, associateship, traineeship or other study

a. What was the most important reason for taking a postdoctoral appointment? (Check only one.)
0 ☐ To obtain additional research experience in my doctoral field
1 ☐ To work with a particular scientist or research group
2 ☐ To switch into a different field of research
3 ☐ Could not obtain the desired type of employment position
4 ☐ Other reason (specify) .... (53)

b. What will be the field of your postdoctoral study?
Please enter number from Specialties List .... (54-56)

c. What will be the primary source of research support?
0 ☐ U.S. Government
1 ☐ College or university
2 ☐ Private foundation
3 ☐ Nonprofit, other than private foundation
4 ☐ Other (specify)
....
6 ☐ Unknown (57)

Go to Item "21"

20. If you plan to be employed, enter military service, or other —

a. What will be the type of employer?
0 ☐ 4-year college or university other than medical school
1 ☐ Medical school
2 ☐ Jr. or community college
3 ☐ Elem. or sec. school
4 ☐ Foreign government
5 ☐ U.S. Federal government
6 ☐ U.S. state government
7 ☐ U.S. local government
8 ☐ Nonprofit organization
9 ☐ Industry or business
(11) ☐ Self-employed
(12) ☐ Other (specify) .... (58)

b. Indicate what your *primary* work activity will be with "1" in appropriate box; *secondary* work activity (if any) with "2" in appropriate box.
0 ☐ Research and development
1 ☐ Teaching
2 ☐ Administration
3 ☐ Professional services to individuals
5 ☐ Other (specify)............................ (59-60)

c. In what field will you be working?
Please enter number from Specialties List .... (61-63)

d. Did you consider taking a postdoctoral appointment?
Yes ___ No ___ (64)
If yes, why did you decide against the postdoctoral?
0 ☐ No postdoctoral appointment available
1 ☐ Felt that I would derive little or no benefit from a postdoctoral appointment
2 ☐ Had more attractive employment opportunity
3 ☐ Other (specify) .... (65)

Go to Item "21"

21. What is the name and address of the organization with which you will be associated?

....
(Name of Organization)

....
(Street) (City, State) (Or Country if not U.S.) (66-71)

BACKGROUND INFORMATION

22. Please indicate, by circling the highest grade attained, the education of

your father:	none	1 2 3 4 5 6 7 8	9 10 11 12	1 2 3 4	MA, MD PhD	Postdoctoral	(72)
		Elementary school	High school	College	Graduate		
your mother	none	1 2 3 4 5 6 7 8	9 10 11 12	1 2 3 4	MA, MD PhD	Postdoctoral	(73)
	0	1 2 3	4 5	6 7	8 9	(11)	

Signature .... Date ....
(74-76)

If you would like to receive a summary of the results of this survey, please check box. ☐ (79)

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D Funds

	NSF No.	Price
deral Science/ ngineering (S/E) upport to Universities and Colleges Rose by % in FY 1981; Non-S/E Support Down 25%"	83-306	-----
al Growth Rate of cademic R&D xpenditures Slows n FY 1981"	83-304	-----
efense Leads R&D Growth in FY 983—Energy and Natural Resources nd Environment all Sharply"	82-322	-----

Personnel

	NSF No.	Price
ojected Employment Scenarios Show Possible Shortages in Some Engineering and Computer Specialties"	83-307	-----
anufacturing Employment Becoming ncreasingly Technological"	83-303	-----
nployment Growth f Scientists and Engineers Accelerated in 1980 to 1981 But Demand Slackened in 1982"	83-300	-----
gineering Colleges Report 10% of Faculty Positions Vacant in Fall 980"	81-322	-----
nployment Opportunities for Ph.D. Scientists and Engineers Shift from Academia to ndustry"	81-312	-----

Composite

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"National R&D Expenditures Expected to Reach $85 Billion in 1983"	82-311	-----

Detailed Statistical Tables

R&D Funds

	NSF No.	Price
Academic Science/Engineering: R&D Funds, Fiscal Year 1981	83-308	-----
Federal Funds for Research and Development, Fiscal Years 1981, 1982, and 1983, Volume XXXI	82-326	-----
Research and Development in Industry, 1980	82-317	-----

S/E Personnel

	NSF No.	Price
Academic Science/Engineering: Scientists and Engineers, January 1982	83-311	-----
Characteristics of Doctoral Scientists and Engineers in the United States: 1981	82-332	-----
U.S. Scientists and Engineers: 1980	82-314	-----
Characteristics of Recent Science and Engineering Graduates: 1980	82-313	-----
Employment of Scientists, Engineers, and Technicians in Private Industry, 1980	81-329	-----

Reports

R&D Funds

	NSF No.	Price
Trends to 1982 in Industrial Basic Research	83-302	In press
Federal R&D Funding for Energy, Fiscal Years 1971-83	83-301	In press
Federal Funds for Research and Development, Fiscal Years 1980, 1981, and 1982, Volume XXX	82-321	$4.75
1990 R&D Funding Projections	82-315	$3.50
Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1980	82-308	$6.50
Problems of Small, High-Technology Firms	81-305	-----

S/E Personnel

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Changing Employment Patterns of Scientists, Engineers, and Technicians in Manufacturing Industries: 1977-80	82-331	-----
Women and Minorities in Science and Engineering	82-302	$7.00
Activities of Science and Engineering Faculty in Universities and 4-Year Colleges, 1978/79	81-323	-----
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